ARMY INFORMATION DIGEST

DECEMBER 1958

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THE OFFICIAL U. S. ARMY MAGAZINE

ARMY INFORMATION DIGEST

THE OFFICIAL MAGAZINE of the DEPARTMENT OF THE ARMY

The mission of ARMY INFORMATION DIGEST is to keep personnel of the Army aware of trends and developments of professional concern.

THE DIGEST is published under supervision of the Army Chief of Information to provide timely and authoritative information on policies, plans, operations, and technical developments of the Department of the Army to the Active Army, Army National Guard, and Army Reserve. It also serves as a vehicle for timely expression of the views of the Secretary of the Army and the Chief of Staff and assists in the achievement of information objectives of the Army.

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BILLOWING in the breeze, canopies bearing 82d Airborne troopers descend to the scene of action at Fort Bragg (*cover*). In training for all types of warfare, the U. S. soldier has been accustomed to forging through surf and sand, advancing through open country, mountainous terrain and matted jungles. Now he is at home in a new environment—the invisible atmosphere which he uses as an avenue for surprise vertical envelopment, to enable him to accomplish his immemorial mission—seizing and holding ground. Airborne training at Fort Benning is depicted in "They Leap Into Battle."

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ARMY INFORMATION DIGEST

DECEMBER 1958

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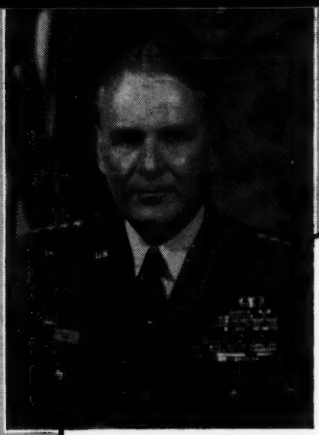


A READING LAMP AND AN EASY CHAIR

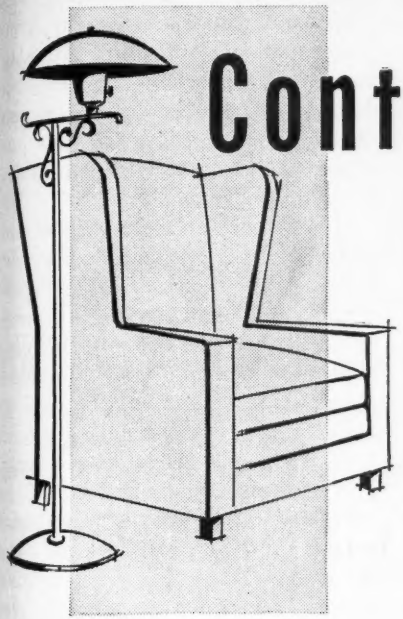
AMONG my basic convictions is a belief that an essential part of each officer's professional equipment is a reading lamp and an easy chair. I do not mean that such furniture is important in itself. Rather, these objects symbolize the inquiring mind and the habit of study which are indispensable attributes of every military leader. In my judgment, these attributes are necessary because, for a military man, the process of education and intellectual growth must never end. Although from time to time he will have access to the facilities of the magnificent Army school system, a significant part of his education must be acquired by personal study. There is no substitute for individual effort aided by book, lamp and chair.

I would not offer advice as to an officer's choice of furniture for his study but I am ready to invite attention to some of its books which it is worth his while to read. Such a selection is found in the Contemporary Reading Program instituted by the Army. An initial list of recommended books appears on page 4 of this issue. I should make clear that this is no suggestion of official approval of the contents of these books. But they do represent mature discussions of significant topics which merit the serious attention of Army men and women. They should provide many thoughtful hours of prolonged enjoyment in an easy chair by a study lamp.

Maxwell D. Taylor

MAXWELL D. TAYLOR
General, United States Army
Chief of Staff

Professional self-improvement through purposeful off-duty reading is the goal of the Army's



Contemporary Military Reading Program

KNOWN as the Contemporary Military Reading Program, an Army-wide program to encourage military members to read for professional self-improvement has been instituted by the Chief of Staff and is being promulgated to the field. Recognizing that in today's world the professional Army member can no longer confine his intellectual range to subjects unmistakably and exclusively labeled "military science," the program seeks to develop a broad understanding of the soldier's role in the complex life of his country and the world.

The selective reading of good books not only illuminates the many aspects of tactics, strategy, diplomacy and world affairs that daily impinge on the profession of arms: it also opens up broad avenues to understanding and knowledge that give depth and significance to the soldier's daily tasks.

The program has two main objectives: (1) To help Army personnel select professionally useful current books for off-duty reading, and (2) to make these books widely available by special distribution through the Army library system.

A BASIC LIST of recommended books compiled by Army staff agencies follows. It is planned that the list will be kept current by the staff of the Army War College and disseminated world-wide following Department of the Army approval. Such approval and recommendation, it should be emphasized, does not imply that the author's views and interpretations are in any way indorsed by the Department of the Army. Rather, it signifies only that the listed book contains a thoughtful presentation of facts, analyses and viewpoints worthy of attention by Army members.

AS a first step toward making the selected books available to Army members, copies are being acquired and distributed through the Army library system. While it is recognized that, even at well-stocked post libraries, not all titles will be available at any given time, it is recommended that serious Army readers begin planning their individual reading programs now by starting with one title and placing reservations for additional titles as available.

Soldiers at isolated field installations may draw on mobile library units, or apply for copies through their local Special Services Officer, who in turn may obtain mail order service from post and overseas command libraries. In addition, copies may be purchased by individuals or units through book clubs, post exchange and service school bookstores, or by direct purchase from the publishers. Cooperating with the Army program, several Army interested organizations are planning to supplement the official library distribution by offering listed books for reduced cost purchase by individuals and units.

THE final measure of the program's effectiveness, however, will not be in the number of books distributed, officially or otherwise. That is only half the job; the other half is a personal and individual responsibility that will be fulfilled each time an Army member chooses and reads one of the listed books.

The long-range benefits will be two-fold—in the soldier's sharpened insight and awareness of his place in the evolving pattern of world affairs, and in the strength that comes through widespread understanding of the complex problems of national security.

CONTEMPORARY MILITARY READING LIST, 1958

CENTURY OF TOTAL WAR *by Raymond Aron. Doubleday, 1954. $5.*

MILITARY HERITAGE OF AMERICA *by R. Ernest & T. N. Dupuy. McGraw, 1956. $10.*

HOW RUSSIA IS RULED *by Merle Fainsod. Harvard, 1953. $7.50.*

HUNDRED YEARS OF WAR *by Cyril Falls. Duckworth, 1953, $6.*

FOREIGN POLICY: THE NEXT PHASE *by Thomas K. Finletter. Harper, 1958. $3.50.*

POWER AND POLICY *by Thomas K. Finletter. Harcourt, 1954. $5.75*

SOVIET STRATEGY IN THE NUCLEAR AGE *by Raymond L. Garthoff. Praeger, 1958. $4.50.*

WAR AND PEACE IN THE SPACE AGE *by Lt. Gen. J. M. Gavin, Ret., Harper, 1958. $5.*

PANZER LEADER *by Heinz Guderian. Dutton, 1952. $10.*

COMBAT ACTIONS IN KOREA *by Russell A. Gugeler. Association of U. S. Army, 1954. $5.*

INSIDE RUSSIA TODAY *by John Gunther. Harper, 1958. $5.95.*

SOLDIER AND THE STATE *by Samuel P. Huntington. Harvard, 1957. $7.50.*

MILITARY POLICY AND NATIONAL SECURITY *by William W. Kaufman. Princeton. 1956. $5.*

REALITIES OF AMERICAN FOREIGN POLICY *by George F. Kennan, Princeton, 1954. $2.75.*

THE DIRECTION OF WAR *by Edward J. Kingston-McCloughry. Praeger. 1955. $4.*

FORGING A NEW SWORD *by William R. Kintner, & Others. Harper, 1958. $4.50.*

NUCLEAR WEAPONS AND FOREIGN POLICY *by Henry A. Kissinger. Harper, 1957. $5.*

WAR POTENTIAL OF NATIONS *by Klaus E. Knorr. Princeton, 1956. $5.*

THE MIDDLE EAST IN WORLD AFFAIRS *by George Lenczowski. Cornell, 1956. $5.50.*

ROCKETS, MISSILES AND SPACE TRAVEL *by Willy Ley. Viking, 1957. $6.75.*

THE RED ARMY *by Basil Liddell-Hart. Harcourt, 1956. $6.*

ECONOMICS OF NATIONAL SECURITY *by George A. Lincoln. Prentice, 1954. $6.95.*

PSYCHOLOGICAL WARFARE *by Paul M. A. Linebarger. Association of U. S. Army, 1955. $6.*

SOLDIERS AND SCHOLARS *by John W. Masland & Laurence I. Radway. Princeton, 1957. $7.50.*

ATOMIC WEAPONS AND ARMIES *by Ferdinand O. Miksche. Praeger, 1955. $5.50.*

ARMS AND MEN *by Walter Millis. Putnam, 1956. $5.75.*

LIMITED WAR *by Robert E. Osgood. University of Chicago, 1957. $5.*

GUIDED MISSILES IN WAR AND PEACE *by Nels A. Parson. Harvard, 1956. $3.50.*

GOVERNMENT AND SCIENCE *by Don K. Price. New York University, 1954. $3.75.*

INFLUENCE OF FORCE IN FOREIGN RELATIONS *by W. D. Puleston. Van Nostrand, 1955. $4.50.*

AMERICAN STRATEGY IN THE ATOMIC AGE *by George C. Reinhardt. University of Oklahoma, 1955. $3.75.*

STRATEGY FOR THE WEST *by John C. Slessor. Morrow, 1954. $3.*

AMERICAN DEFENSE AND NATIONAL SECURITY *by Timothy W. Stanley. Public Affairs Press, 1956. $3.75.*

NEW DEVELOPMENTS IN ARMY TACTICS, ORGANIZATION AND MATERIEL *by Marvin L. Worley. Military Service, 1958. $4.25.*

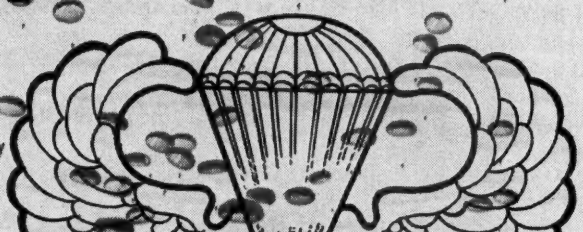
HOW AND WHERE TO OBTAIN BOOKS LISTED IN CONTEMPORARY MILITARY READING PROGRAM

BOOKS listed in the Army Contemporary Military Reading Program are being distributed Army-wide through local Special Services library facilities of The Adjutant General's Office. In addition, the central reference library at each command headquarters can provide the books on direct loan by mail to personnel at locations where no local library facilities exist.

Professional librarians staffing the Army's Special Services libraries can procure additional copies by inter-library loan between service, public and university libraries. ROTC students and Professors of Military Science and Tactics are encouraged to use their college library facilities. Personnel at site locations may draw books from the Post Library of the installation servicing their unit, or from bookmobiles and local deposit collections maintained on-site.

Rigorous airborne training tempers muscles and minds for the day when

THEY LEAP INTO BATTLE



EVEN BEFORE the airborne soldier snaps on a parachute harness, he undergoes rigorous conditioning on the ground under an intensive training system set up by the Airborne-Air Mobility Department of the U. S. Army Infantry School at Fort Benning, Georgia.

The parachuting part of the soldier's job, it is recognized, is merely a means to an end—the ability to move, shoot and communicate on the ground as part of today's modern mobile Army.

Yet even the means to that end is one that demands top physical conditioning, hard muscles, swift reactions, the ability to hit the ground without injury after hitting the silk. Ground training thus serves an important double purpose.

To illustrate—the student beginning the basic airborne course is required to perform satisfactorily four pull-ups, 22 push-ups, 34 sit-ups, 36 squat jumps, and three repetitions of a four-minute road run. During the four-week course, he receives daily physical training drills, and must increase his running ability—all in addition to practice in parachute jump procedures.

Officers and designated noncommissioned officers take an initial one-week course in Air Movement and Aerial Delivery—planning movement of various types of units by air and the techniques of delivering supplies and equipment from an aircraft.

Upon completion of this initial week's training, officers and all enlisted men undergo three weeks of training in the basic individual techniques of parachuting. In the Ground Training Phase, the student learns how to exit from an aircraft and how to land safely. A model or mock-up of the cargo compartment of a troop carrier type aircraft is used as a practice aid.

This is followed by training in control of the body from the moment of exit until the opening shock caused by deployment of the main canopy. The student jumps from the 34-foot mock tower, falls 15 feet, and is brought up short by a cable. He then slides down the cable to the ground.

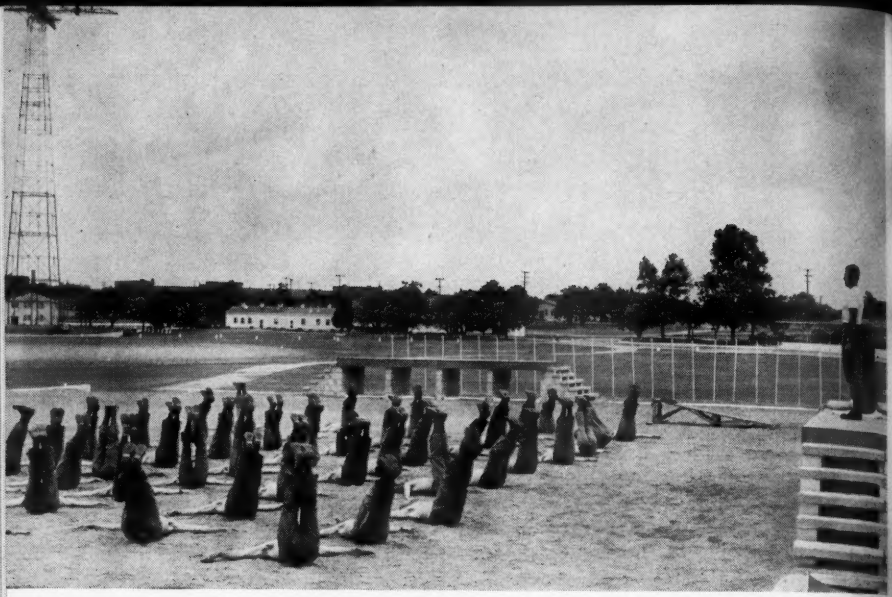
The airborne trainee also learns the technique of controlling the parachute during descent, using a harness suspended from a steel ring by four web risers. The ring responds to manipulation just as a canopy does on a live jump.

Along with this training goes the proper manner of making contact with the ground. A wind machine simulates ground winds and a swing landing trainer creates oscillation and downward motion similar to that encountered in a live jump. The student is taught how to hit the ground, to recover from the fall and the ensuing drag, and to collapse the canopy.

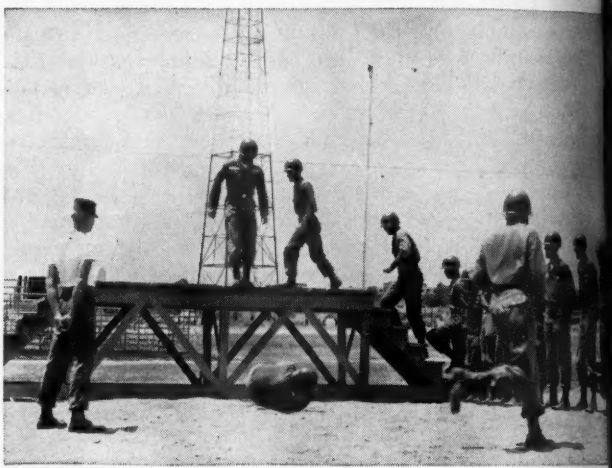
Ten hours of instruction are devoted to the 250-foot free tower from which the trainee drops in an inflated parachute similar to that used in a live jump. Here each student gets at least two jumps, and a maximum of four, of which half must be satisfactory. During all of this training, there is constant review, and the intensive physical training continues.

Final week of the course is primarily devoted to five qualification jumps. The student receives instruction on conduct in the aircraft itself, and on techniques of assembly. Then he takes to the air in actual jumps. The fifth and qualifying one is an equipment jump.

Thoroughly tempered and ready for his airborne role, the soldier is now entitled to wear the coveted parachute wings of the airborne trooper.



They begin with training on the ground . . .

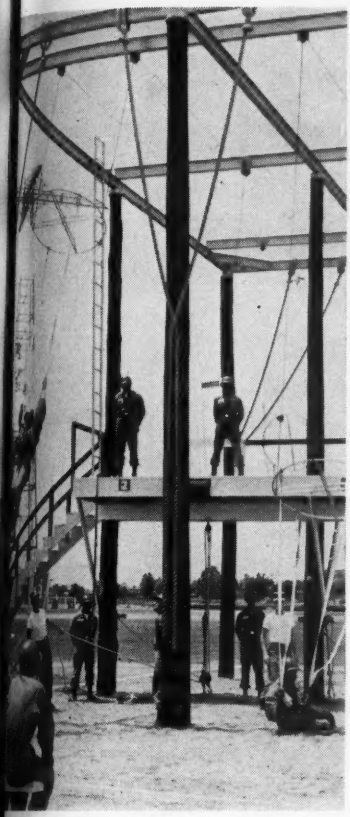


Top: Physical training is part of the daily routine.

Center: Airborne students move "at the double." Here they practice parachute landing falls.

Left: In mockup of an aircraft, the budding jumper learns how to make a proper exit.

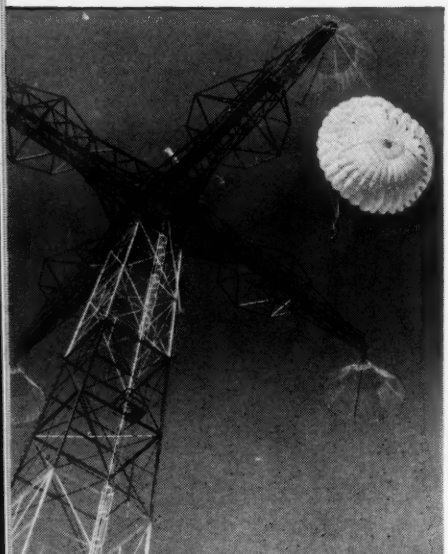
... but soon take to the air via towers . . .



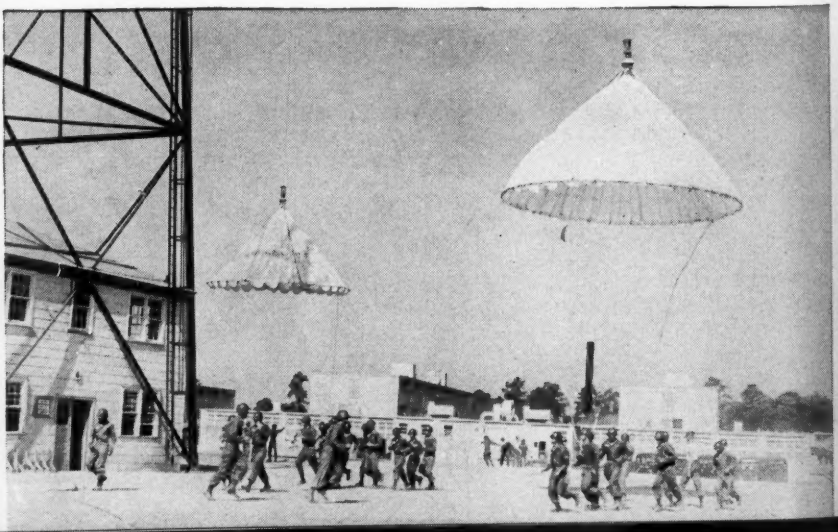
The swing landing trainer (left) gives the motion and sensation of an actual jump, and the 34-foot tower (above) produces the opening shock.

They battle the wind machine to learn control . . .

First free descent is from 250-foot towers . . .

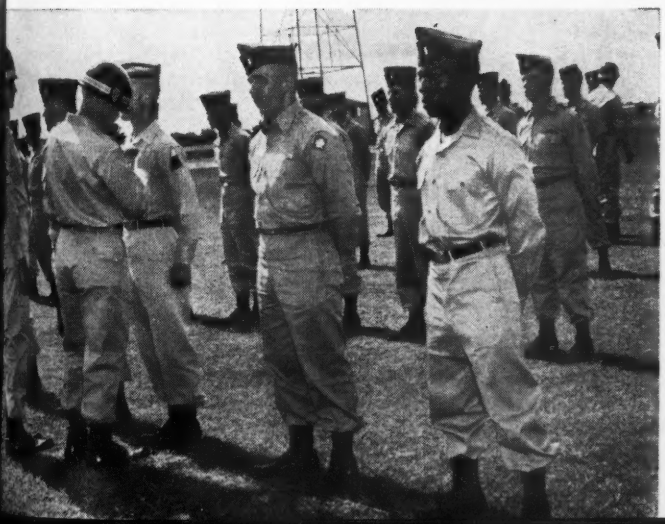


. . . where they "jump," land, and then "jump" again . . .



Aboard the aircraft an equipment check precedes each . . .

. . . of five qualifying jumps, after which the troopers proudly wear . . .



. . . their hard-earned "Jump Wings" presented at graduation ceremonies.

Army Ordnance tackles ...k of

MARRYING T... WITH R...

Colonel I. O. Drewry

WHILE it is generally known that the Atomic Energy Commission designs and develops within its own laboratories all atomic devices, including high explosive components utilized in the initiation of the atomic explosion, the marriage of these atomic devices to the delivery system (to include the safing, arming and fuzing of the atomic devices for the Army) is a development role assigned to the Atomic Applications Laboratories of Picatinny Arsenal, Dover, New Jersey.

COLONEL I. O. DREWRY, Ordnance Corps, has been Commander of Picatinny Arsenal since 1956. Previously he was director of the Arsenal's Samuel Feltman Ammunition Laboratories, of which the Atomic Applications Laboratories are a part.

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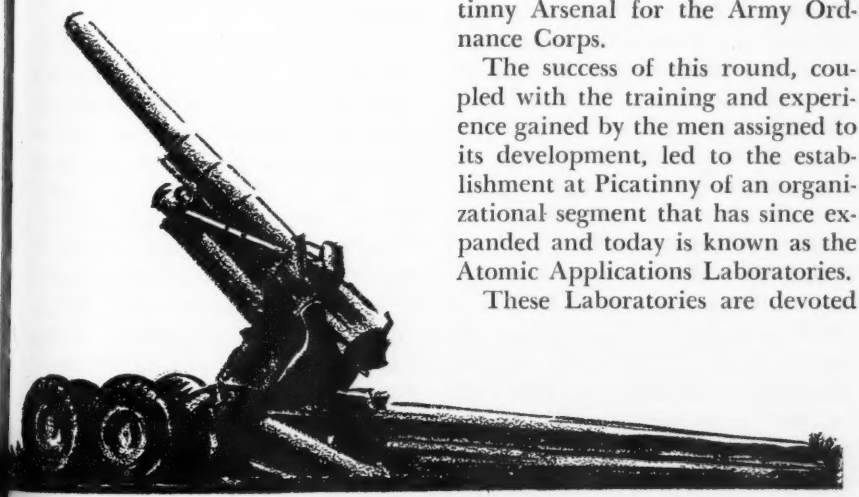
ATOMICS TARTILLERY

In this task, exacting requirements for reliability, environment and safety must be fully recognized. There must be proper assurance that the nuclear burst will take place exactly where it is planned. Careful consideration must be given to the fact that every atomic carrier is launched under extremely unusual conditions of temperature, shock, vibration, acceleration, and the like. There must be assurance, too, that the fuzing system provides the required degree of safety, reliability, and accuracy. The mechanism to fulfill all these requirements must be "packaged" in a tactical sense so that it will not be excessively heavy or fragile.



Army Ordnance was introduced into this new munitions effort in 1950, when it was assigned the project of developing the first atomic shell—a 280mm round to be launched from a conventional artillery tube. A small, select group of officers and government-employed engineers was formed at Picatinny to conduct this effort.

Their outstanding success, which resulted in a successful firing at Frenchman's Flat, Nevada, only two years later, opened a new epoch in the outstanding history of munitions development by Picatinny Arsenal for the Army Ordnance Corps.

The success of this round, coupled with the training and experience gained by the men assigned to its development, led to the establishment at Picatinny of an organizational segment that has since expanded and today is known as the Atomic Applications Laboratories.

These Laboratories are devoted

". . . Picatinny Arsenal has become an important information center and has assumed the role of the atomic weapons coordinator within the Army Ordnance Corps."

to the study, as well as development, of the application of known devices to fit the Army's field requirements for special weapons. Working in close conjunction with the Atomic Energy Commission and with the Armed Forces Special Weapons Project, the Laboratories insure that the latest scientific achievements are incorporated in the development of atomic munitions for Army application.

RECENT GROWTH

THE Picatinny organization's original assignment for development of an atomic artillery projectile in 1950 was a lone project under subcontract to the Atomic Energy Commission. In 1953 an agreement was reached between the Department of Defense and the Atomic Energy Commission transferring certain responsibilities pertaining to the non-nuclear aspects of atomic weapons to the Department of Defense. At that time, Picatinny Arsenal was assigned the mission function as a center for all activities related to atomic weapons development insofar as the Army has responsibility.

Starting with a small staff, this organization has expanded to a total strength of more than 300 today. Small but complete organic laboratory facilities provide the capability of assembly and test under extreme conditions.

While these laboratories function as an entity, they do not operate independently of the other Arsenal segments, nor of the other Ordnance facilities. Full use is made of the talent and facilities available in such Ordnance installations as Aberdeen Proving Ground, Yuma Test Station, White Sands Proving Ground, Diamond Ordance Fuze Laboratories, Frankford and Watertown Arsenals, as well as the civilian-industry contract complex supporting the specialties of each organizations.

LABORATORY ORGANIZATION

PICATINNY Arsenal's organization for atomic research and development consists of three main development laboratories, organized on functional lines. These laboratories are in turn supported by the chemical, physical and engineering research laboratories that make up a development complex.

The main development laboratories assigned to nuclear weapons development include the Advanced Atomic Weapons Laboratory, Tactical Atomic Weapons Laboratory, and the Long Range Missiles Laboratory.

Advanced Atomic Weapons Laboratory is primarily concerned with the application of nuclear devices to delivery systems not encompassed in the rocket and guided missile categories—in other words, artillery, demolition devices, and the like. Its primary technical capabilities pertain to development of mechanical design, propellants and explosives, fuzing and arming, field testing and handling, and electronics.

Development work in explosives is conducted either for or in full coordination with the Atomic En-

ergy Commission laboratories. For example, work is underway leading to higher material strength of explosives. A major proportion of this development activitiy is conducted at Picatinny. In addition, the Laboratory furnishes information and guidance pertaining to the technical aspects of munitions design and development to other government and commercial agencies.

Tactical Atomic Weapons Laboratory is responsible for development of the warhead sections which encompass the warhead provided by the Atomic Energy Commission, for such weapons as Honest John and Corporal. It is responsible, under the cognizance of the U. S. Army Missile Command, Redstone Arsenal, Huntsville, Alabama, for marrying the Atomic Energy Commission devices to Army-developed missile systems.

This Laboratory performs the very important function of environmental testing and check-out within local laboratory facilities. It also functions as coordinator between select contractors and government facilities to form an efficient government-industry team on its development programs.

Long Range Missile Laboratory is concerned with the development of the warhead section as applied to the intermediate range missile class, such as Jupiter, and the ground-to-air programs such as the Nike Hercules. Its activities are primarily related to the design, development and adaption of atomic warheads to the extreme requirements that make up the environment and functioning of intermediate range missiles.

Within this Laboratory is a Technical Research Section which

Careful check of electrical circuits is made on each component of a missile system.

provides support for all of the atomic laboratories by operational studies and statistical evaluation of projects. By providing a course of study and research leading to the conception of new and novel adaptions of nuclear devices, the Section keeps the parent laboratories abreast of new nuclear devices and projects their possible application to Army weapons systems.

All three main laboratories are supported by a Field Liaison Engineering Unit of the Advanced Atomic Weapons Laboratory. This Unit provides services related to product and field engineering liaison between research and development, production, field service and troop activities. This Unit also handles the initial familiarization of field personnel with new atomic munitions.

TEST FACILITIES

AMONG its activities, the Advanced Atomic Weapons Laboratory is responsible for operation of atomic ground testing facilities.

These range from classrooms to electro-mechanical laboratories to actual environmental test. With these facilities, the complete flight and transportation environment that can be expected to occur under the most severe conditions can be simulated with the largest warhead sections now under study.

The various environmental chambers, for instance, are capable of simulating temperatures ranging from —100° to +200° Fahrenheit, with humidity ranges from 20 to 95 percent, and with altitude ranges up to 200,000 feet. A dynamic balancing machine is available to determine the amount and location of unbalance in artillery shell weighing up to 2,500 pounds and measuring up to six feet in length and thirty inches in diameter. Equipment is available for simulating flight vibrations with a force output of 1,200 pounds and a frequency range of 5 to 2,000 cycles per second. Centrifuges can simulate flight accelerations throughout the entire range of flight of rocket and guided missile warheads for the largest of the warheads being considered.

In addition to the Laboratories' internal equipment, Picatinny Arsenal provides a complete array of test equipment including drop towers, air guns, closed firing ranges, fragmentation towers, high explosive development facilities, high speed photographic and other electronic apparatus.

DEVELOPMENT PHASES

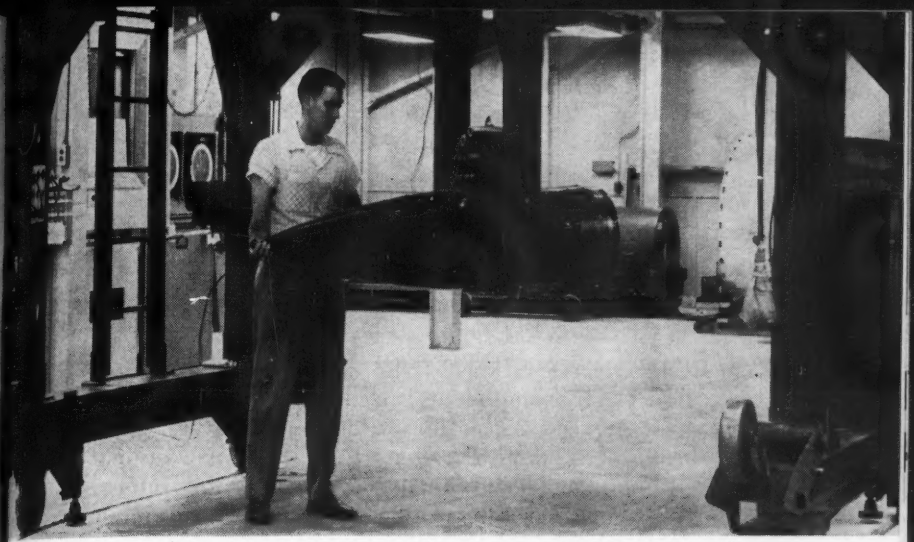
IN GENERAL, the Laboratories operate on a five-phase basis in bringing their research and development projects to a successful conclusion. Phase 1 is devoted to feasibility or operational research; Phase 2, study and design activity; Phase 3, development; Phase 4, evaluation and test; and Phase 5, the user or troop test.

The feasibility or operational research phase involves a thorough analysis of performance requirements and military characteristics. A combined mathematical and engineering approach is taken, considering weapons effects versus weapons capabilities. During this phase, the development time scale and financial aspects are balanced against the probability of meeting the imposed technical military requirements.

Study and design activity involves, first, intensive research in existing literature, then the application of available technical techniques in ballistics, material strengths, electronics and other applicable sciences. The purpose of this phase is to arrive at a tentative paper design which appears possible within the limits of known sciences. If this goal is accomplished and the need for the proposed munition is established and approved, a basic development program is launched.

During the development stage every variable in the suggested design is isolated and all conceivable ground and air environmental tests are performed. As soon as component testing has been completed, model and telemetered prototypes are built to prove the ballistic soundness and reliability of the design.

When the assembled development design proves satisfactory, the evaluation stage is started. In this stage, as many items as possible of a similar lot are tested in order to prove that reliability factors pre-



Equipment in the Advanced Atomic Weapons Laboratory can determine proper balance in artillery shell weighing up to 2,500 pounds.

scribed by military requirements are being met. In brief, the Atomic Applications Laboratories are responsible for the given item from its inception until its functional efficiency has been conclusively proved.

THE ARSENAL'S ROLE

IN THE discharge of its assigned atomic weapons mission, Picatinny Arsenal has become an important information center and has assumed the role of the atomic weapons coordinator within the Army Ordnance Corps. Periodically, it conducts atomic weapons symposia as a means of keeping other Ordnance establishments abreast of the technical progress in this important field. Many of its engineers are members of the Joint Atomic Energy Commission-Department of Defense Committees which study proposed development areas and assist in the solution of scientific problems.

The Picatinny Arsenal organization, by its studies and development activities, has measurably increased the stockpile of information and hardware that is available for Army use when and if required.

In its overall role, Picatinny Arsenal serves both the Ordnance Corps and the Army. The Arsenal is charged with the national development mission, as well as the industrial and maintenance engineering support mission, with respect to explosives, atomic munitions and those other end items of ammunition classified as artillery, mortars, bombs, mines, grenades and pyrotechnics. It is also assigned a special mission responsibility for basic and supporting research and engineering activities with respect to plastics, adhesives and ammunition packaging.

The Arsenal is one of the old-line Ordnance activities, dating back to 1880 as a government-owned installation, and has served the Army with distinction through every national conflict since that time. Through the years it has built an organization of high technical competence, operating a plant facility whose development tools in the warhead or ammunition field range from the test tube to pilot production of the complete item.

ARMY TRENDS

HIGHLIGHTS OF ARMY PROGRESS

RESEARCH ■ DEVELOPMENT ■ WEAPONRY ■ ORGANIZATION ■ TRAINING

RESERVE COMPONENT STRENGTHS. Following publication of "Reorganizing the Reserve Components" in last month's DIGEST, the Department of the Army received authorization for an average strength of 400,000 inclusive of six-month trainees for the Army National Guard, and an end-strength of 300,000 inclusive of six-month trainees for the Army Reserve in Fiscal Year 1959. These strengths constitute an increase beyond previously authorized planning levels.

The Secretary of the Army has approved recommendations that this increase be utilized to raise the strength of units in the reserve forces structure approved 7 July 1958. This will permit all reserve component divisions to be completely organized to include those which were previously programmed to have only three of the customary five infantry battle groups. To maintain the resultant Army National Guard troop structure will require a strength of 400,000.

The objective sought by the Army in its utilization of this additional strength is an increased mobilization capability for units of the reserve components.

GUARD IN ARMY AIR DEFENSE ROLE. Marking the beginning of an important new era for the Army National Guard, selected Guard units in California took over Nike-Ajax sites from the Active Army in September to become the first reserve component units to be given an active role in surface-to-air missiles. The changeover climaxed more than a year of intensive training, planning, and coordination.

In addition to the California units, Guard units are scheduled for conversion in Connecticut, Illinois, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, Washington, Wisconsin, and the District of Columbia.

NIKE-HERCULES—MOBILITY AND ACCURACY. That Nike-Hercules has the mobility essential for support of Army operations in any part of the world was demonstrated in a recent series of firings in Florida. Mobility of the antiaircraft system, using both air and ground transportation, was tested by a task force from Fort Bliss, Texas.

Other accomplishments of the task force included: first firing of an antiaircraft missile at target drones flying in formation; first firing of Nike-Hercules with live warheads near a populated area; first firing of two Hercules missiles simultaneously in salvo. Analysis of results shows that the entire formation of three F-80 drones would have been destroyed had a nuclear warhead been used in place of the conventional warhead which destroyed the lead drone. For more on Nike-Hercules, see opposite.

Missile School Stresses Nike-Hercules Training

MARKING the Army's transition to newer, more powerful surface-to-air weapons, the Army Ordnance Guided Missile School at Redstone Arsenal, Alabama, is shifting emphasis in antiaircraft missile training from the Nike-Ajax to the Nike-Hercules. Nike-Ajax training will be continued on a reduced basis as long as necessary to man remaining Ajax batteries here and abroad, Colonel H. S. Newhall, Commandant, states.

The Nike-Hercules, using solid propellant fuel and traveling at supersonic speeds, can carry atomic or conventional warheads. Nike-Hercules batteries are now replacing existing Ajax installations near New York, Washington, Chicago, Los Angeles and Philadelphia and soon will be operational near other major cities.

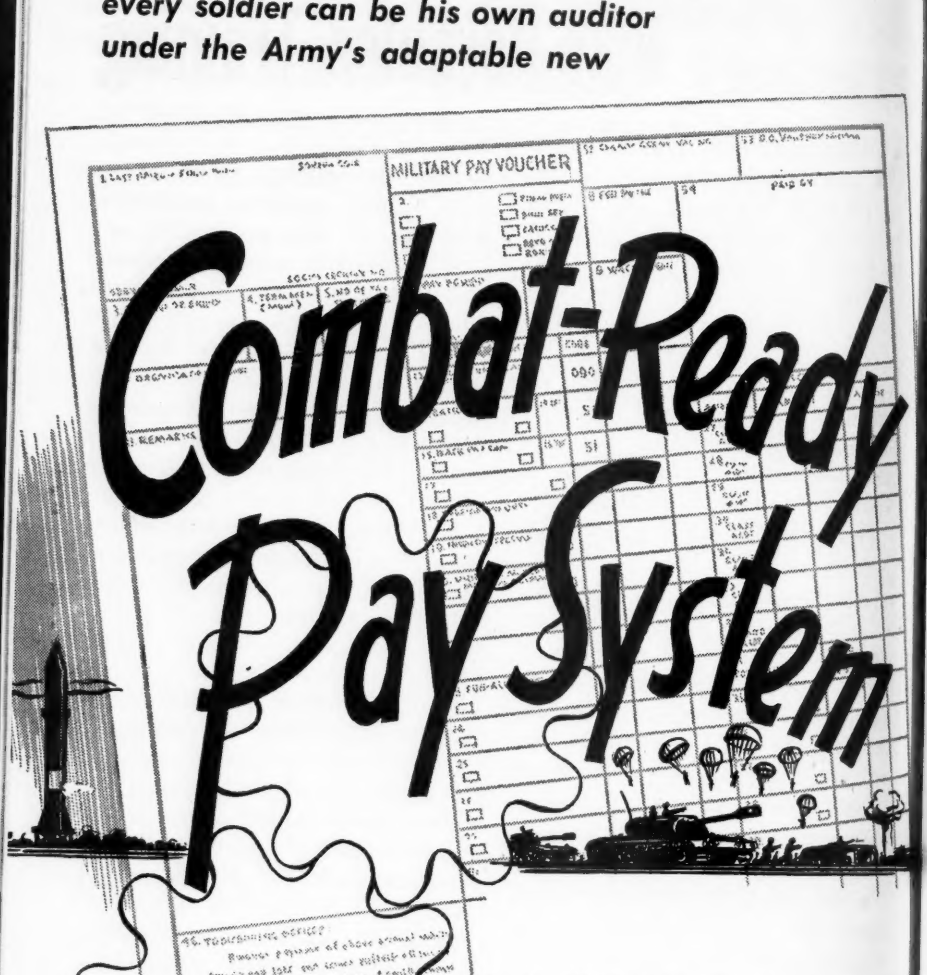
Among advantages of Nike-Hercules cited by the Commandant:

- No operational aircraft exists today that can out-distance the Nike-Hercules with its ability to carry atomic warheads at supersonic speeds.
- In more than 100 successful firings to date, the Nike-Hercules has been demonstrated to be the most modern and reliable surface-to-air missile system yet to become operational. In joint tests conducted recently by the Army and Air Force at Eglin AFB, Florida, six of the missiles were fired against six targets with 100 per cent success.
- Nike-Hercules contains within itself the ability to pick up hostile targets and engage them either with a high explosive or atomic warhead. It can operate in any kind of weather around the clock, despite efforts of hostile planes to jam it.
- The atomic warhead used in the Nike-Hercules has been designed to insure that detonation occurs only at altitudes sufficiently high to prevent damage to friendly terrain.
- In the event of a non-nuclear war, Nike-Hercules can select and destroy with a conventional high explosive warhead individual aircraft in a tightly spaced formation of high-speed jet bombers. Nike-Hercules moreover has demonstrated its capabilities of destroying with its high explosive warhead small, unmanned, high-speed jet aircraft much swifter than nuclear weapon-carrying high altitude jet bombers normally to be expected as targets.
- The Nike-Hercules requires no elaborately prepared sites but can be emplaced anywhere and destroy its intended targets.

Preparations for the change to the Nike-Hercules training program have been under way for more than a year by the same Army-industry team that developed the original Ajax. This includes the Army Rocket and Guided Missile Agency, Army Ballistic Missile Agency, Bell Telephone Laboratories, Western Electric Company and Douglas Aircraft Company.

With pay vouchers replacing pay cards, every soldier can be his own auditor under the Army's adaptable new

Combat-Ready Pay System



Major General Paul A. Mayo
Chief of Finance, U. S. Army

A NEW pay system, combat-ready to serve the needs of the modern Pentomic Army, will be introduced 1 January 1959. The system is geared to operate under the most austere field conditions, yet is adaptable to modern electrical and electronic processing equipment in more stable areas.

Revision of the military pay system was the direct result of experience in Korea. The pay card system, established in 1949, simply

did not stand the acid test of battle conditions encountered there. Obviously, it was even less suited to the greater dispersion and more rapid deployment of troops required by present-day tactics.

A brief review of the principal features of the current pay card system helps point up some of the reasons for the change to the new pay voucher system.

The pay card used since 1949 is a six-month, one-copy record of entitlements, deductions, and payments for each military member. It is prepared and maintained by a disbursing officer based on documents reflecting pay changes supplied by the unit personnel officer. The pay record is the essential key to payment and accounting. Settlement in full cannot be made without the record. If casual or partial payments are made when the record is not available, they must eventually be entered upon it. At the end of the six month period, the pay card is closed and forwarded to the Finance Center, U. S. Army in Indianapolis, Indiana, for examination, detailed accounting, and file.

The problems of operating this system during the months of violent combat in Korea were many and overwhelming. Under fluid battle conditions, contact between the disbursing officer holding the records and the troop units he serviced was often lost. Pay change documents did not reach the disbursing officer; units were shifted to new sectors of the front while pay records remained behind. Records were lost, or destroyed by enemy action; and reconstruction, impossible in the field, was a slow and arduous process at the Finance Center. As a result, numbers of men went unpaid, or were incorrectly paid for long periods.

"The soldier's copy will contain a complete statement of what is due, what he owes, and how his pay was computed. On the reverse side are pay charts by which he can check the accuracy of his pay."

Peak work loads were caused by the need to open and close all pay records semi-annually. Disbursing sections worked to the limits of endurance and still could not keep up with the work load. Capping these difficulties, the system required a cumbersome amount of mechanical equipment and transport was a serious problem.

CONTRAST this with the new system—its common-sense simplicity and fitness to combat conditions.

The new system features the use of an individual military pay voucher, prepared monthly, in lieu of the six-month military pay record, military pay orders, money lists, and several other documents presently needed to maintain a pay account. The five-part "no-carbon required" voucher form is prepared by the unit personnel officer to show all items of entitlement and obligation. Four parts are forwarded to the most conveniently located disbursing officer for computation and payment. Afterwards, the original paid voucher is sent to the Finance Center for processing. Other copies are for the payee, the unit personnel officer, and the disbursing officer's retained records.

"The advantages of the pay voucher system . . . have equal application to a garrison situation and will aid in improved management of military pay matters at the Finance Center and at higher Department of the Army levels."

Thus, the burdensome job of opening and closing records with consequent semi-annual peak workloads is eliminated. Preliminary information is furnished each month by the unit personnel office so that the disbursing officer may determine entitlement and compute the voucher.

Payment is not contingent upon access to a pay record which may not move as the unit moves. No longer does a flood of intermediate documents flow from personnel to disbursing officer during the month, each to be posted to the pay record or records affected. The net gain is fewer losses in transit and elimination of countless chances for posting errors. And, if the military pay voucher should be lost or destroyed, information is readily available in the field so that it can be reconstructed without delay.

Equipment needs, too, have been minimized under a system designed for optimum mobility. As a result, the Finance Section will be prepared to travel light and fast, and to set up and operate with the speed and precision of a gun crew.

ACCURACY AND SPEED

THE advantages of the pay voucher system are by no means restricted to the field army. Many of its advantages have equal application to a garrison situation and will aid in improved management of military pay matters at the Finance Center and at higher Department of the Army levels.

Benefits will accrue from the independent computation of copies of the new voucher by two clerks, and comparison to eliminate error, in place of computation by one clerk under the pay record system.

The financial history of each individual maintained by the Finance Center will be kept more current since it will now be regularly up-dated with monthly pay vouchers rather than semi-annually by pay records. A single file will contain all data needed for a comprehensive audit of an individual's entire pay account. Contrasted with this, a thorough audit under the pay record system requires difficult research into documents from several locations.

Under the new system, the net results of increased currency and accessibility will be more prompt replies to requests for information, faster adjudication of claims, and more current audit of payments. As an added dividend, the old locator system requiring special advice from the field each time a man is transferred can be eliminated.

Accounting and budgetary aspects, too, are vastly improved. The new system facilitates timely accounting and provides a more valid basis for budgetary controls. Complete data on disbursements and collections, which will now flow through command channels instead of being developed at the Finance Center, will be available to Department of Army staff agencies within 30 to 45 days after close of the month, permitting prompt correc-

tive action in the case of imbalances. In contrast, such information is not now available until nine to thirteen months after payment.

MORALE BENEFITS

OF ALL the advantages which can be claimed for the new pay system, those stemming from supplying each soldier with a copy of his pay voucher are perhaps most noteworthy. The soldier's copy will contain a complete statement of what he is due, what he owes, and how his pay was computed. On the reverse side are pay charts by which he can check the accuracy of his pay. This innovation will result in a better informed soldier; and a soldier who is promptly and accurately paid is an important factor in improved unit morale.

It is confidently expected that the soldier will provide the best and most thorough audit of his own pay voucher. He will be most interested and alert that changes in his entitlement are reflected on his voucher and that he is paid all that he is due. By reporting any underpayments he will get his money promptly and reduce the subsequent claims load at the Finance Center. By reporting any over-payments which may occur, he will protect himself against the financial hardship of later collection action, and save the Army the administrative costs of such collections.

Henceforth when a man has a question concerning his pay, his First Sergeant or unit commander will have information available to help him. This is an area of advice and assistance from which NCOs and commanders alike have been virtually excluded since 1949 as a result of the mechanics of the pay record system. Individuals with questions on pay were necessarily passed from First Sergeant, to unit personnel officer, to unit commander, to disbursing officer. Complaints and inquiries were often so voluminous that disbursing officers were forced to conduct "pay clinics." The intricacies of the six month record were so baffling that, in the end, the soldier's question might still remain unanswered.

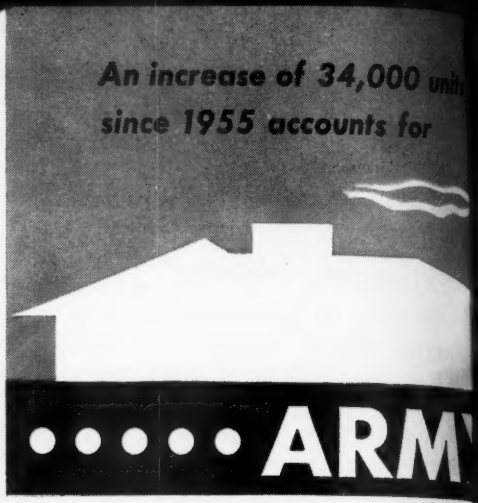
Besides the administrative and training time lost in these cases there has been a corresponding decline in individual and unit morale. The elimination of this situation by providing for a separate and distinct computation of each month's pay and the issuance of an itemized statement to the payee is considered a major accomplishment.

That the new system will be enthusiastically received by the individual soldier is clearly forecast from its reception at the test sites. The system has been the most thoroughly studied and tested of any to come into being. Actual testing under the designation "Operation Pay" began at Fort Dix, New Jersey, in June 1955. It was later expanded to include approximately 50,000 troops at various installations in July 1956. Although the test phase is now completed, these men continue to be paid under the system.

These troops, almost to a man, favored the change. Often real concern was expressed by commanders and men, lest the new system not be adopted and the benefits lost.

But it has proved itself in test, and on 1 January it becomes the official military pay system of the Army. Custom-made to the Army's order, it will serve the Army well.

THE NEW LOOK IN ARMY HOUSING



Colonel Paul H. Symbol

"WHAT is the family housing situation at my next duty station?"

"Will I be able to move into quarters on post or will I have to look for a place to rent or purchase?"

These and many related questions are uppermost in the thoughts of Army personnel when they receive orders to a new duty station.

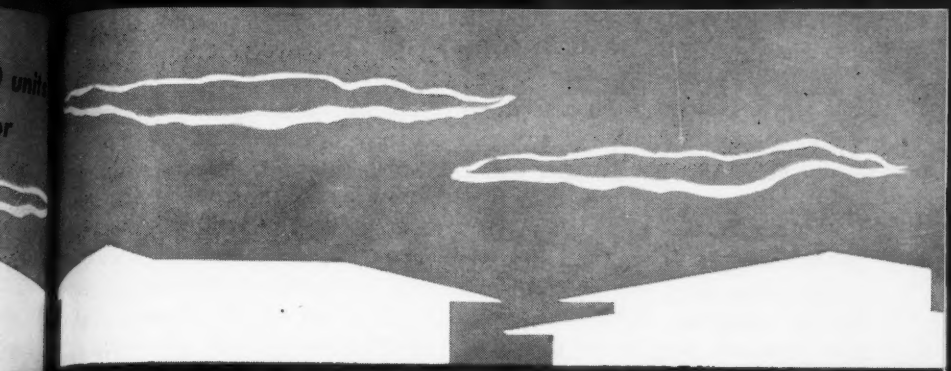
Fortunately, the answers are generally more favorable than at any time in the past. During the past three and one half years, the Department of the Army has provided more family housing than in all previous years combined in the history of the service.

To make possible this accomplishment, it was necessary to establish firm planning on a long-range basis. Before any construction orders could be issued or contracts awarded, authorization from the Congress also was required

FOUR principal means are being employed to obtain additional housing for the Army. Within continental United States and its possessions, these methods are the Title VIII (Capehart) Program, the Military Construction Army (MCA) appropriated fund program, and a Leasing Program for tactical installations. In temporary base-rights areas overseas, the principal method used is the Surplus Commodity Housing Program. The latter program is dependent upon funds generated from the sale of United States surplus agricultural commodities in foreign countries.

In addition to these four main methods, the Congress has authorized the military services to provide off-base housing for essential civilian employees at research or development centers. This program provides for a military guarantee of the mortgages on housing purchased by them.

COLONEL PAUL H. SYMBOL, General Staff, was until recently Chief, Army Family Housing Division, Office of the Deputy Chief of Staff for Logistics, Department of the Army.



AMILY HOUSING •

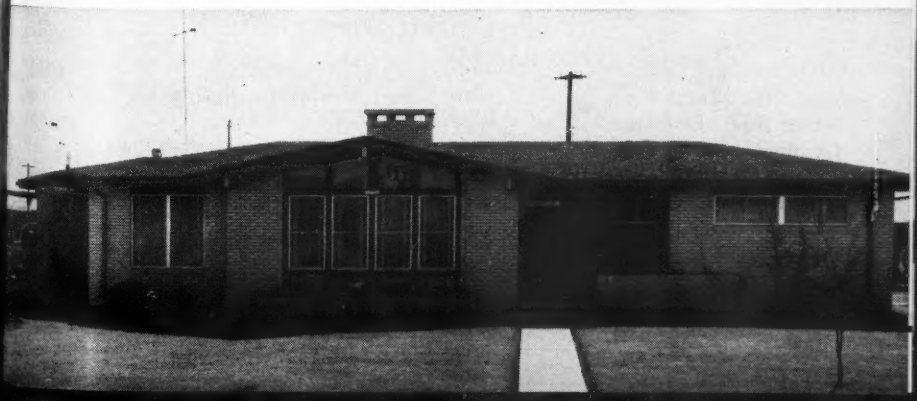
Still another means to obtain housing in oversea areas is provided by the Rental Guarantee Program. Under this program private investors construct rental housing units for occupancy by military personnel. The military guarantees that 95 percent occupancy will be maintained for a period of five to seven years. In France the Army has 1,852 units.

TO determine the Army's long-range family housing requirement, preliminary planning is begun at each Army installation. In calculating requirements, installation personnel strengths are projected as far as reliable estimates are known. Project planning, based on these calculations, is reviewed and revised as necessary at the end of each fiscal year. Gross housing requirements are based on the number of military personnel authorized housing under permanent legislation, plus those essential civilian employees whose duties require that they live on-post.

Adequate privately owned off-base rental housing is counted toward the total available assets. To be considered adequate, such housing must be located near the installation (thirty minutes one-way travel time by automobile), must be livable and within the rental allowance, including utilities costs, of the military occupant.

As a safety factor, to preclude overbuilding at installations and to allow for troop strength fluctuations and possible increases in community support, housing proj-

Three Bedroom Single Dwelling, Colonel's Quarters



ects are developed at 90 percent of the gross requirement.

MCA CONSTRUCTION

UNDER this method, construction contracts are awarded to successful bidders using funds appropriated by the Congress for this specific purpose. This is considered one of the most desirable methods.

MCA housing constructed or currently under contract has been designed within the size and dollar limitation authorized by Congress. Specific designs include row types, four to eight apartments in a building with separate entrances; semi-detached or duplex houses; and a proportion of single dwellings.

Generally, the designs include

TITLE VIII (CAPEHART) HOUSING UNDER DEVELOPMENT, U

As of October 19

UNDER CONSTRUCTION

Station	*Units*	*Station*	*Units*
Fort Baker-Barry, California	98	New York, New York	16
Baltimore, Maryland	16	Norfolk, Virginia	42
Fort Belvoir, Virginia	618	Oakland A.T., California	88
Fort Bliss, Texas	490	Fort Ord, California	724
Bridgeport, Connecticut	20	Redstone Arsenal, Alabama	316
Fort Campbell, Kentucky	837	Fort Riley, Kansas	433
Fort Dix, New Jersey	702	Sandia Base, New Mexico	213
Detroit, Michigan	26	Schofield Barracks, TH	591
Dugway Proving Ground, Utah	50	Fort Shafter, TH	100
Camp Detrick, Maryland	63	Fort Totten, New York	72
Hartford, Connecticut	16	Travis AFB, California	48
Fort Jay, New York	238	Tripler Army Hospital, TH	150
Fort Knox, Kentucky	1,682	Two Rock Ranch, California	24
Fort Leavenworth, Kansas	200	USDB Lompoc, California	60
Fort Lee, Virginia	150	Fort Wadsworth, New York	66
Fort Lewis, Washington	375	White Sands Missile Range, New Mexico	75
Fort McClellan, Alabama	200	Beaumont Army Hosp., Texas	125
Fort Meade, Maryland	1,000	Fort Leonard Wood, Missouri	1,329
Medina Base	125	Yuma Test Station, Arizona	209
Fort Monmouth, New Jersey	120		
New Cumberland General Depot, Pennsylvania	91	SUB-TOTAL	11,798

UNDER DEVELOPMENT

Station	*Units*	*Station*	*Units*
Fort Bliss, Texas	410	Fort Monmouth, New Jersey	130
Bossier Base, Louisiana	200	Panama	330
Granite City Engr Depot, Illinois	65	QM R&D Center, Massachusetts	35
Fort Hood, Texas	500	Fort Rucker, Alabama	400
Fort Leavenworth, Kansas	200	Schofield Barracks, TH	385
Fort Lee, Virginia	285	New York, New York	32
Fort Lewis, Washington	856	Seneca Ordnance Depot, N. Y.	120

contemporary and modern style with flat roofs or pitched roofs with wide over-hangs. Single and duplex houses are mainly one-story ranch style while the row-types are mostly two-story units. In eastern United States, for example, a territorial design—a modified colonial with red brick—has been used. In other instances, the design allows use of prefabrication techniques.

Housing criteria established in Army Regulations provide for design of two-, three-, and four-bedroom units. The maximum possible number of three-bedroom units is planned for each project. Design includes one and a half baths for three-bedroom units, two baths for four-bedroom units, and

NT, UNDER CONSTRUCTION AND COMPLETED

ober 1958

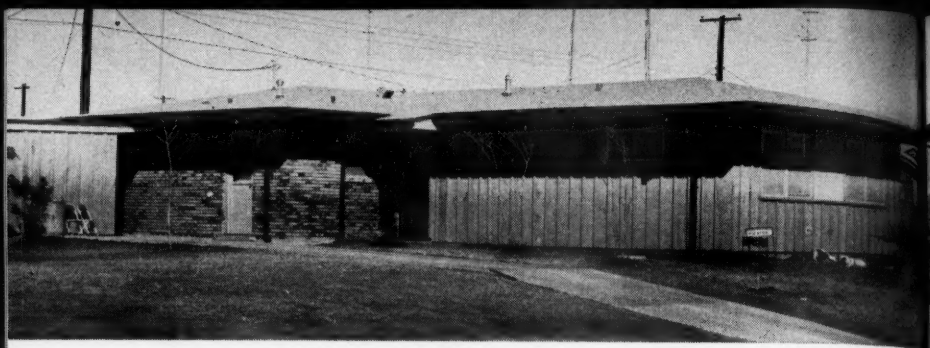
Station	*Units*	*Station*	*Units*
Fort Shafter, T. H.	481	White Sands Missile Range, New Mexico	200
Fort Sheridan, Illinois	50	Fort Leonard Wood, Missouri	700
Fort Sill, Oklahoma	349	Fairchild AFB, Washington	64
Fort Stewart, Georgia	73	Niagara, New York	64
Fort Totten, New York	58	Washington, D. C.	16
US Disciplinary Bks, Lompoc, California	100	SUB-TOTAL	6,103

COMPLETED CAPEHART HOUSING

Station	*Units*	*Station*	*Units*
Fort Benning, Georgia	1,000	Redstone Arsenal, Alabama	270
Fort Bragg, North Carolina	1,500	Richmond QM Depot, Virginia	25
Fort Carson, Colorado	500	Fort Richie, Maryland	70
DA Receiving Station, Maryland	12	Fort Rucker, Alabama	600
Fort Eustis, Virginia	600	Schofield Barracks, TH	735
Hartford, Connecticut	112	Fort Stewart, Georgia	388
Fort Huachuca, Arizona	575	Fort Story, Virginia	150
Killeen Base, Texas	125	White Sands Missile Range, New Mexico	134
Fort Knox, Kentucky	360	Boston, Massachusetts	120
Fort Lawton, Washington	66	Bridgeport, Connecticut	92
Fort Leavenworth, Kansas	100	Loring AFB, Maine	64
Fort Lee, Virginia	500	Providence, Rhode Island	76
Fort McClellan, Alabama	100	Seattle, Washington	92
Fort Monmouth, New Jersey	120	SUB-TOTAL	8,885
Fort Ord, California	365		
Pine Bluff Arsenal, Arkansas	34		

RECAPITULATION

Under Construction	11,798
Under Development	6,103
Completed Units	8,885
GRAND TOTAL	26,786



Three Bedroom Single Quarters for Noncommissioned Officers

a proportion of three-bedroom units.

During the past three and one half years approximately 7,000 MCA family housing units have been constructed or currently are under contract at sixty-two installations in continental United States and possessions. Of this total, approximately 6,500 units have been completed and the remaining units are scheduled for completion during FY 1959. Approximately $126,390,000 of appropriated funds was expended.

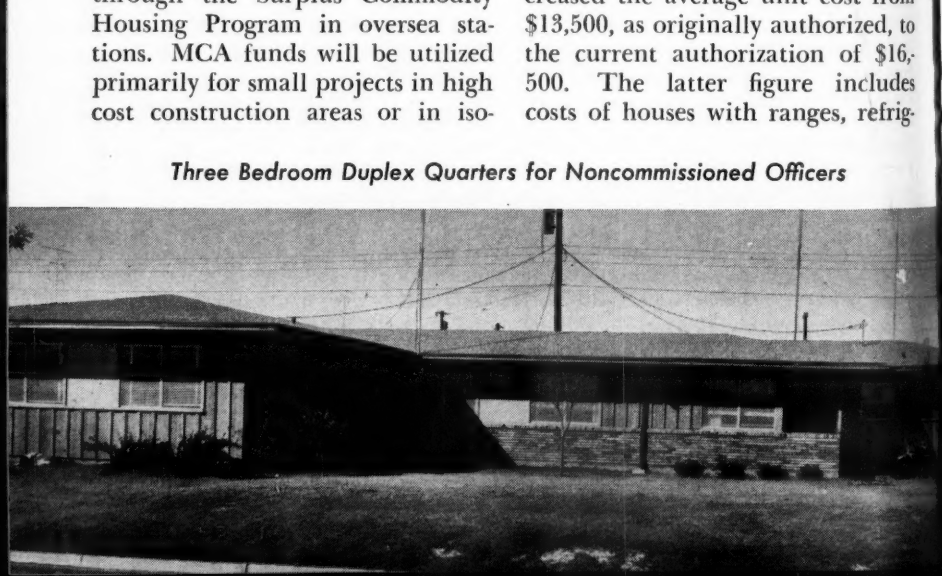
Future construction programs will include MCA housing; however, most housing will be provided under the Title VIII (Capehart) Program in continental United States and possessions, and through the Surplus Commodity Housing Program in oversea stations. MCA funds will be utilized primarily for small projects in high cost construction areas or in isolated tactical areas where construction under the Capehart program is considered infeasible.

TITLE VIII (CAPEHART) HOUSING

THE National Housing Act, as amended, provides authority for construction of Title VIII (Capehart) family housing at military installations in the United States, Alaska, Hawaii, Puerto Rico, Guam, Virgin Islands, Canal Zone and Midway Island. Current authorization for Capehart housing expires on 30 June 1959; however, legislation has been initiated to further extend this authority.

Design of Capehart housing is essentially the same as MCA housing. Amendments to the National Housing Act of 1955 have increased the average unit cost from $13,500, as originally authorized, to the current authorization of $16,500. The latter figure includes costs of houses with ranges, refrig-

Three Bedroom Duplex Quarters for Noncommissioned Officers



Three Bedroom Single Quarters for Noncommissioned Officers

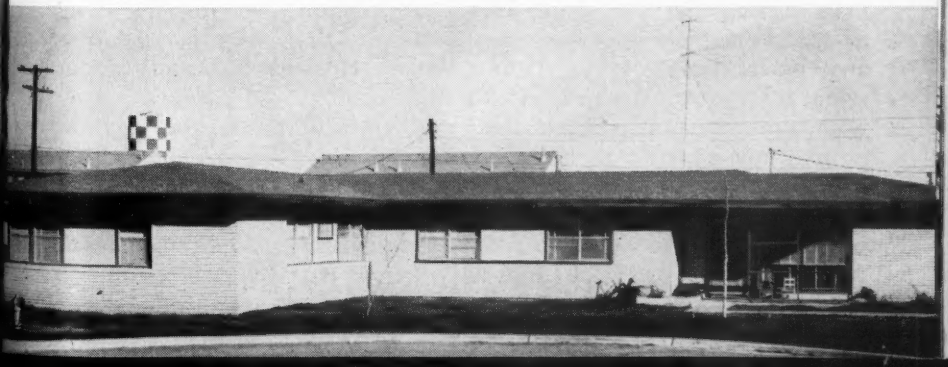
erators, and other desirable features added if cost limitations permit, as well as roads, sidewalks, improvements and outside utilities within the project boundary. Further, costs of design and inspections, financing and legal fees, interest charges and related fees charged by non-Army agencies are included in the unit cost ceiling.

Legislation governing this program further requires that construction plans shall be based on the modular measure principle which will permit conventional construction, prefabrication, factory pre-cutting or any combination of these.

With the exception of land acquisition, if required, site preparation and utilities systems outside the project boundary, appropriated funds are not involved in financing of Capehart housing. Construction contracts are awarded by competitive bid, and the Federal Housing Administration issues mortgage insurance representing 100 percent of the replacement value, thereby eliminating all risk for the lending agency. These mortgages are guaranteed by the Secretary of the Army; when each project is completed, the units become public quarters of the military department concerned which then assumes the mortgage.

Mortgages are amortized over a period of 25 years by applying quarters allowances of personnel occupying the units. Financing is generally accomplished through private capital sources; however, in the recent past, financing of Capehart projects was obtained principally from the Federal National Mortgage Association (FNMA), a government agency commonly referred to as "Fannie May". This agency is authorized to purchase mortgages for housing constructed for the Armed Forces.

Company Grade Officers Quarters, Two and Three Bedroom Duplex



Row-Type Officer Family Housing, Three Bedroom

Recently, the Congress authorized an increase of interest rates—a move which has placed Capehart mortgages within the competitive field with other types of government guaranteed mortgages, and now private capital is being used entirely in Capehart housing.

Since the origin of the program, more than 20,000 Capehart family housing units have been placed under construction or completed. *(See box, pages 26-27.)*

WHERRY HOUSING ACQUISITION

THE Title VIII (Wherry) Program of the National Housing Act provided the Department of the Army a total of 21,476 family housing units at 56 installations. Initially constructed by private enterprise during the period of 1951 to 1956, these projects were operated by the builder-sponsors on a rental basis to Army personnel who would simply pay rent out of their normal housing allowances.

The original cost limitation of $9,000 per unit imposed on Wherry projects resulted in varying quality and size of units depending on the construction cost in various areas. Rental costs were scaled to the type of unit—not to the quarters allowances of the military occupants.

Public Law 1020—84th Congress which amended the National Housing Act, provides that the Secretary of Defense or his designee shall acquire Wherry housing units located at or near installations where the construction of Capehart housing has been approved. Accordingly, Wherry housing located at nineteen installations, consisting of some 12,809 units, has been acquired under this program.

SUB-STANDARD QUARTERS

INCLUDED in Army family housing assets are a large number of quarters which are sub-standard or inadequate because of type of construction, location, or design. Many of these are converted World War II barracks and hospital wards.

Notwithstanding the fact that this housing is inadequate based on present housing standards, military personnel occupying such quarters were required to forfeit their quarters allowance until pas-

sage of Public Law 241—85th Congress on 30 August 1957. This Act authorized the Secretary of the Army to determine public quarters inadequate under regulation approved by the President. A determination of inadequacy permits military personnel with dependents to occupy such quarters on a rental basis without loss of the basic quarters allowance. As of 30 June 1958 some 7,000 units were declared inadequate and approved for occupancy on a rental basis.

FAMILY HOUSING OVERSEAS

CURRENTLY, the primary source of housing overseas is the Surplus Commodity Housing Program, established by Public Laws of the 83d Congress. Success of this program is dependent on sales within foreign countries of United States surplus agricultural commodities. Resulting funds are used for construction financing; the Department of Agriculture in turn is reimbursed from rental allowances forfeited by United States military and civilian occupants.

A total of 1,466 such units were placed under contract during FY 1957—436 in Japan, and 1,030 in France. An additional 469 units, placed under contract during FY 1958, are located in Japan, France and Italy. At the end of FY 1958, a total of approximately 500 units have been completed and occupied.

Future plans include construction of Surplus Commodity housing in France, Italy, Spain, England and other locations where the need exists and funds are generated through sale of agricultural surplus commondities.

LEASING PROGRAM

RECENT legislation authorizes the Department of the Army to lease privately owned homes in the vicinity of tactical military installations. This method has particular application to Army antiaircraft sites, many of which are located in high cost areas. A limit of $150 monthly rental per unit is imposed. As of 30 June 1958, the Army under this program provided approximately 4,250 housing units.

UTILIZING all available methods to the maximum extent, the Army is advancing toward its goal of providing adequate family housing for its personnel, wherever they may be stationed. Progress to date —including provision of more than 34,000 housing units during the past four years—is an example of the unrelenting effort being made to assure Army families everywhere adequate, desirable housing which meets acceptable standards.

Row-Type, Three Bedroom Noncommissioned Officer Housing

OKINAWA

KEYSTONE OF THE PACIFIC

Lieutenant General Donald P. Booth

IN HIS May 1958 article in ARMY INFORMATION DIGEST, General I. D. White, Commander in Chief, United States Army, Pacific, pointed out that Okinawa "will continue to be a keystone in America's defenses in the Pacific and the Far East."

LIEUTENANT GENERAL DONALD P. BOOTH is Commanding General, United States Army, Ryukyu Islands/IX Corps, and High Commissioner of the Ryukyu Islands.

A glance at the map of the Far East clearly indicates why the strategic location of this island base is of military importance in the defense of the United States and the Free World. If a circle is drawn around Okinawa using a six hundred mile radius, it will reach deeply into the home islands of Japan, touch the southern portion of Korea, encompass much of the heavily populated east coast of

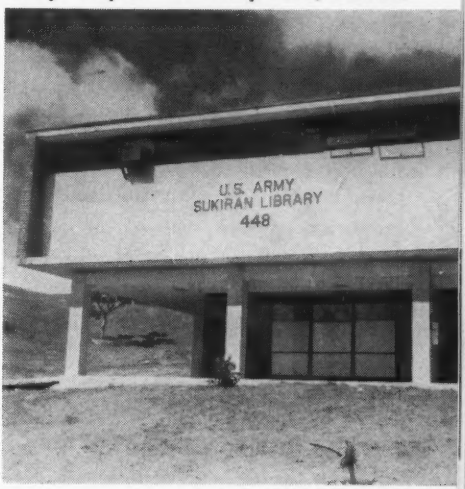
only to all Armed Forces installations here but also to several key Okinawan cities. It also supplies electricity to Armed Forces installations on Okinawa, supplementing the power provided by Army-built power stations with electricity generated by the power barge, *Jacona*, anchored in an inlet adjoining the East China Sea.

The newly-opened U. S. Army Hospital, Ryukyu Islands, one of the finest medical institutions in the Far East, serves patients from all the Armed Forces on Okinawa and their dependents. Here Ryukyuan doctors and nurses receive special training in latest medical techniques from Army Medical Group personnel.

OKINAWA is dotted with radio communication antenna which enable the U. S. Army Signal Group to maintain direct contact, 24 hours a day, with key installations throughout the Far East and, by relay, with the remainder of the Free World. Signal Corps-installed underground telephone cables link Armed Forces installations throughout Okinawa with dial telephone service. The U. S. Army Signal Group provides signal supply and field and depot maintenance service for all the Armed Forces in the Ryukyu Islands.

The U. S. Army Port at Naha on the East China Sea and the important subport at White Beach at Buckner Bay on the Pacific Ocean side are operated by the U. S. Army Transportation Group, Ryukyu Islands, using its fleet of assigned harbor craft. The Transportation Group also provides marine equipment maintenance support for the Air Force, Coast

A distinctive style of typhoon resistant architecture is transforming the landscape, as evidenced by new Army hospital at Camp Kue, above.



Also typical of the clean modern lines of new buildings are the U. S. Army Library, above, and the new chapel recently erected at Sukiran.

Guard and Military Sea Transportation Service, in accordance with inter-service agreements. Other Transportation Group responsibilities include handling of line haul land transportation and technical service supplies in addition to programming ocean movement of cargo, personnel and effects.

The U. S. Army Ordnance Group carries on Class II, IV and V supply and maintenance support for all Armed Forces in Okinawa. The main portion of the Ordnance Group operates out of the huge Machinato Service Area complex, with ammunition storage and the explosive ordnance disposal service conducted at other locations.

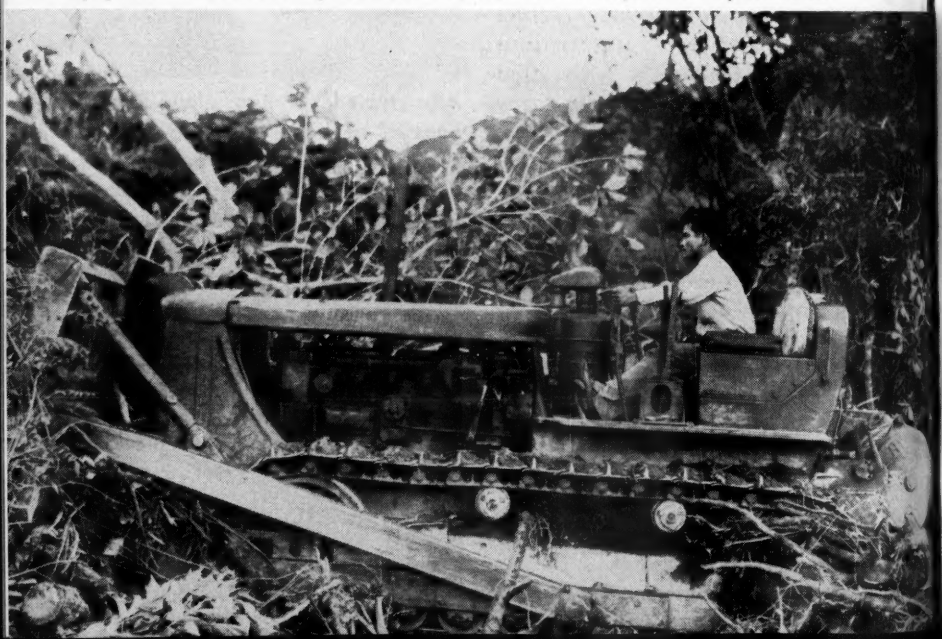
IN addition to operating the extensive petroleum storage and distribution system, the U. S. Army Quartermaster Group, Ryukyu Islands, handles subsistence supplies for all the Armed Forces in the Ryukyu Islands. The Group procures fresh vegetables and fruits from Okinawa growers who meet the high United States food sanitation standards, thus providing substantial assistance to the Ryukyuan economy.

Throughout USARYIS/IX Corps, many logistical functions are carried on by thousands of Ryukyuan employees. Besides providing a means of livelihood for an important segment of the Ryukyuan populace, this local employment has furnished valuable training for Ryukyuan citizens in a wide variety of technical skills.

COMMUNITY RELATIONS

IN EACH political subdivision having a substantial military population, local Community Relations Committees conduct regular meetings. Key Ryukyuan officials and the area's senior military commander alternate as chairmen. Discus-

Agriculture has benefited. Here an Okinawan farmer uses modern power equipment introduced by USCAR's Economic Development Department.



Education has been given impetus. The University of Ryukyus, with enrollment of over 2,000, was founded through USCAR efforts in 1950.

sions of local problems are conducted with remarkable frankness, and local problems are ironed out before they develop into major issues. These committees also have initiated a far-flung program of community improvements. For example, as an interim measure, Koza, the second largest city in the Ryukyus, has recently been hooked into the military water supply system.

CIVIL ADMINISTRATION

CONCURRENT with my military responsibilities, I also serve as High Commissioner of the Ryukyu Islands in charge of the United States Civil Administration, Ryukyu Islands (USCAR). The Civil Administrator, Brigadier General Vonna F. Burger, devotes his full time to the civil affairs mission.

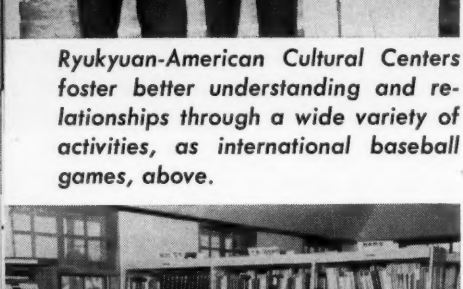
The Ryukyus are unique in that these islands comprise the only area in which the United States Army currently conducts civil affairs. Following the defeat of Japan in 1945, all powers of the Japanese Government in the Ryukyu Islands were suspended. Governmental control was exercised by United States Army Military Government under the authority of Executive Orders and implementing Department of the Army directives.

Subsequently, Article 3 of the Japanese Peace Treaty of 8 September 1951 provided that so long as tensions exist in the Far East ". . . the United States will have the right to exercise all and any powers of administration, legislation and jurisdiction over the territory and inhabitants" of the Ryukyu Islands.

Military Government operations ended in 1950 with the establishment of the U. S. Civil Administration. This agency has the assigned mission of promoting a responsible Ryukyuan government, democratic principles, a balanced economy and higher living standards.

Although the total area of the islands is small, administering the Ryukyus involves virtually all the functions of government familiar to Americans in their home country, ranging from immigration to currency. Moreover, certain special factors make the governmental operations extraordinarily complex.

Ryukyuan-American Cultural Centers foster better understanding and relationships through a wide variety of activities, as international baseball games, above.



Five libraries operated by the Centers are in wide use throughout the Islands. Below, square dance clubs compete in annual Ryukyuan-American Friendship Week festivities.

The Ryukyus constitute one of the most densely populated areas in the world, yet only 27 percent of the land is arable. Furthermore, the area is not one continuous territory but 48 populated islands scattered over a length of about 374 over-water miles.

In contrast with other densely populated islands such as Java, the island chain's natural resources are extremely limited due in part to poor soil derived from coral limestone, dissected topography, lack of catchment areas, virtually non-existent timber and mineral resources.

Devastation was appalling in the wake of the 1945 Battle of Okinawa. About 95 percent of all buildings and growing crops in the heavily populated southern half of the island had been destroyed in the bitter fighting. Unlike the case in Japan and Germany, occupation authorities did not find a trained civil service or an industrial and commercial complex capable of carrying on reconstruction.

Prior to 1945, few Ryukyuans had any experience in government or business administration. Japanese had managed most of the prewar business enterprises, superintended the schools, and headed the governmental departments. After V-J Day, the situation was aggravated by the return of some 200,000 Ryukyuan migrants from the far corners of the dissolved Japanese empire to islands that in normal times could scarely support their existing population.

ALTHOUGH confronted from the outset with a formidable array of problems, USCAR has made very substantial progress towards

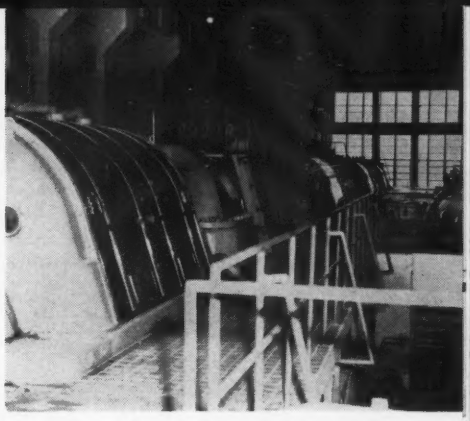
its goals. (See "United States Army Pacific," May 1958 DIGEST.)

Civil Administration accomplishments in economic rehabilitation, public health, education and welfare, are vividly reflected in the fact that within the space of thirteen years from a starting point of almost utter devastation, the real per capita income has risen approximately one-third above the pre-World War II level with an actual drop in the commodity price index since 1951. This achievement, it should be emphasized, has been accompanied by a sharp decline in United States appropriated assistance from a peak of $50 million in FY 1950 to $770,000 in FY 1958.

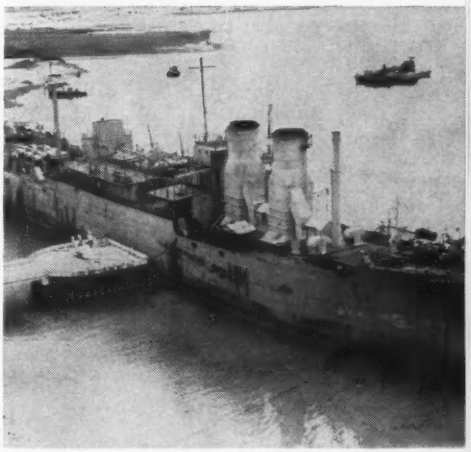
USCAR ORGANIZATION

USCAR is divided into nine departments for implementing the civil administration mission:

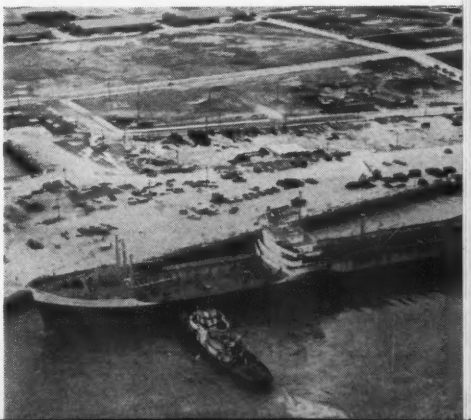
- Economic Development Department has had the task of promoting agriculture and fishing, encouraging industries and supervising foreign investments.
- Education Department has reconstructed educational facilities far beyond pre-war standards, including the founding of the University of the Ryukyus in 1950, the first higher educational institution to be established in the Ryukyu Islands.
- Finance Department is charged with the mission of supervising foreign exchange transactions, trade, customs, taxation policies, public finance and banking.
- Judicial Department handles the administration and supervision of all courts.
- Department of Public Safety



Power to meet the modernization needs of an ancient land is being supplied. Above, each of four generators is capable of 11,500 kilowatt output.



The Army power barge "Jacona" in Sukiran basin, above, provides additional power for Central Okinawa. Below, huge supertanker brings in petroleum products.



gives guidance to the Ryukyuan Police Department, Immigration Agency and Prisons System.

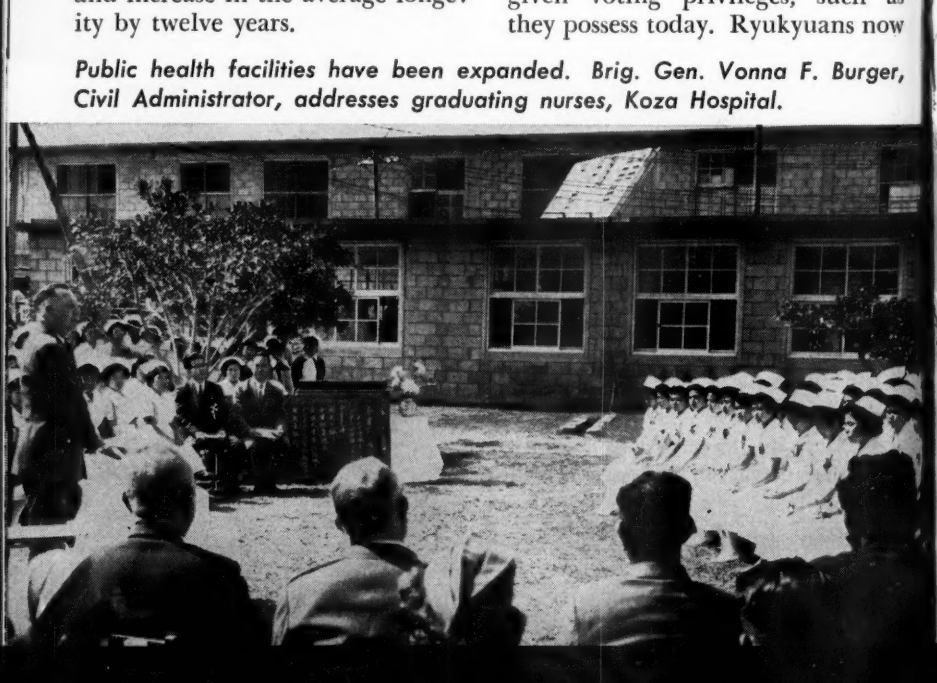
- Labor Department is working on the improvement of labor standards, development of higher skills by Ryukyuan labor, and encouragement of wider participation in the social security program.
- Legislative and Legal Department coordinates closely with the Ryukyuan officials on matters affecting legislation and administration of Japanese-owned property.
- Office of Public Information supervises the only Japanese-language radio station in the Ryukyu Islands. In addition it operates cultural centers and supervises publication of Japanese-language periodicals.
- Public Health and Welfare Department success in combatting disease and improving medical practice and care throughout the Ryukyu Islands is reflected in the decline in the death rate to less than 40 percent of the prewar level and increase in the average longevity by twelve years.

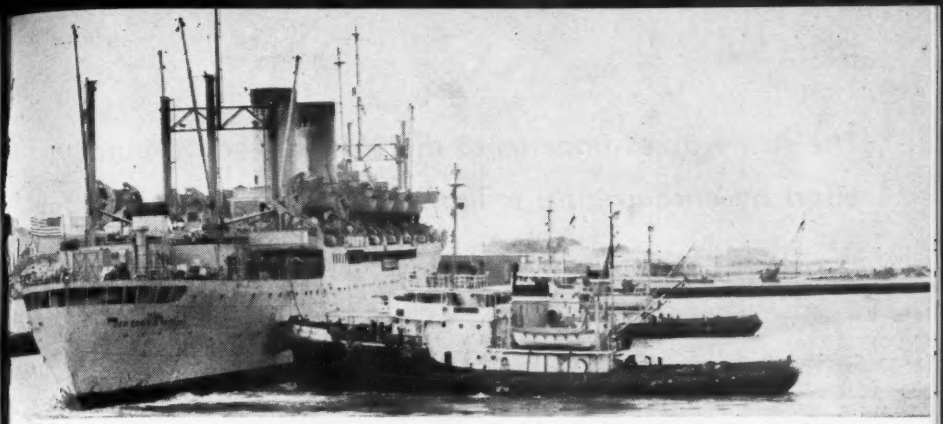
FOLLOWING the signing of the Japanese Peace Treaty, the Government of the Ryukyu Islands or, as it is familiarly known, the GRI, was set up in 1952 with the traditional legislative, judicial and executive branches. Each GRI Department has its counterpart in USCAR. Direct discussion of governmental matters between the appropriate departments is encouraged. As a matter of policy, more and more administrative authority is being turned over to GRI agencies as they become increasingly capable of coping with complex governmental matters.

The way was prepared early for the development of the Ryukyuan higher governmental structure, starting in 1948 with municipal government elections, through extension of universal suffrage, and expanding to *gunto* (regional) elections by 1950 in which the citizens selected their *gunto* governors and assemblies.

Never before in the long history of the Ryukyus had women been given voting privileges, such as they possess today. Ryukyuans now

Public health facilities have been expanded. Brig. Gen. Vonna F. Burger, Civil Administrator, addresses graduating nurses, Koza Hospital.





Shipping activities have been revitalized. The USNS **Edwin D. Patrick** *is berthed at modern docks built at port of Naha.*

elect a higher proportion of their officials than they ever did as a prefecture of Japan.

PRESENT PROBLEMS — FUTURE PROSPECTS

THE stationing of many thousands of Americans on Okinawa, already the most densely populated island on earth, has inevitably created some friction. With the Okinawan population expanding at the rate of 20,000 per year, utilization of land by military forces presents vexing problems. Exercising established democratic privileges, proponents of nationalism, pacificism and neutralism freely express their views and criticisms. Some foreign-abetted extremists issue frequent demogogic utterances and misleading interpretations regarding United States aims. However, under the free election system, there has been a serious left-wing trend in only one of the 63 municipalities.

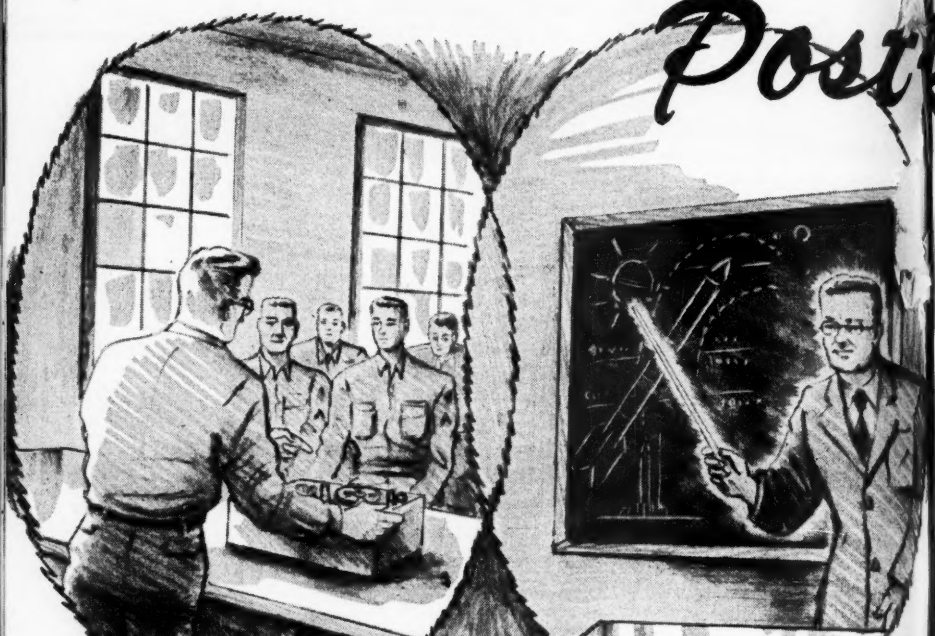
American-Ryukyuan relations have been remarkably free of the violence which has cropped up in other parts of Asia, where Americans have rubbed shoulders with other peoples. People-to-People activities are flourishing throughout the islands, with mutual interest societies and clubs organized and operating among American and Ryukyuan athletes, university graduates, musicians, artists and others. More than 100,000 Ryukyuans visited the 1958 Armed Forces Day displays and demonstrations on Okinawa, and more than 15,000 paid admission to the 4th of July Tri-Service Celebration and Rodeo, with proceeds earmarked for Ryukyuan charities.

IN SUMMARY, certain facts are self-evident. Present world conditions require the presence of strong United States military forces on the Ryukyu Islands for the ready defense of the United States and the Far East nations of the Free World. With timely assistance by the United States, the industrious citizens of the Ryukyus not only have effected a remarkable economic recovery from the devastation of war but also have achieved a higher degree of individual freedom and representative self-government than ever before.

With continued cooperation and teamwork between Americans and Ryukyuans, the future holds bright promise of continued progress and development in the Keystone of the Pacific.

The Army gives impetus to the Nation's educational effort by encouraging military personnel to prepare for

Post



Major General R. W. Porter, Jr.

THE U. S. ARMY which traditionally has performed a double-barreled role of defending the Nation against aggression while simultaneously building strength through research, development and pioneering in related fields is today taking steps to meet a critical shortage in a vital area of national need—the educational advancement of our youth.

MAJOR GENERAL R. W. PORTER, JR. is Director of Military Personnel Management, Office of the Deputy Chief of Staff for Personnel, Department of the Army.

Due primarily to the increased demand created by demobilization and the exceptionally rapid growth of United States population in the post World War II period, the teacher shortage throughout the country now has reached a critical stage. Furthermore, it will continue to grow even more acute in the immediate future as school enrollments continue their rapid climb. College enrollments, for example, are expected to double by 1965.

Early realizing the seriousness of this trend, President Eisenhower called the first White House Con-

Retirement

TEACHING CAREERS

ference on Education. "To neglect our school system," he said, "would be a crime against the future. Such neglect could well be more disastrous to all our freedoms than the most formidable armed assault on our physical defenses."

It was pointed out both in the April 1956 report of the President's Committee on Education and the July 1957 report of his Committee on Education Beyond the High School that critical shortages of competent teachers exist, particularly in the fields of science and mathematics.

In the latter report, the President's Committee pointed out that a largely "untapped resource" for good teachers is retired military personnel. Many of these retirees, the report added, are particularly suited to teaching careers because of their educational backgrounds, especially in engineering and mathematics; because of their experience in teaching and training men; and because of the relatively early age at which they retire. The Committee urged fuller use of this resource to help meet the critical teacher shortage.

IN RESPONSE to the Committee's Report, the Department of the Army initiated a program to encourage eligible officers and enlisted personnel to prepare themselves to qualify, upon retirement, as teachers in the Nation's schools.

"I feel that the United States Army can and should have an active role in this matter of great national urgency," Secretary of the Army Wilber M. Brucker declared in a statement to all active and retired Army personnel. "Such a role," he continued, "properly will comprise informational and administrative assistance to retiring personnel and those contemplating retirement who can be induced to consider continuing in the public service as teachers.

"The Reserve officer retiring under Title II of Public Law 810," Secretary Brucker noted, "usually retires after twenty years of service. Hence a good many officers in this category will be retired in their mid-40's. Regulars retire under the Officer Personnel Act after five years in grade or thirty years of service. Officers in this category usually retire in their middle 50's.

> *"To neglect our school system would be a crime against the future. Such neglect could well be more disastrous to all our freedoms than the most formidable armed assault on our physical defenses."*
> *President Eisenhower*

Such personnel already are accustomed to the kind of demands, sacrifices, and degree of dedication required of teachers."

THE Department of the Army program seeks to inform, motivate and assist Army personnel to prepare themselves for teaching careers and to provide assistance to them in making themselves available upon retirement.

Little motivation will be needed to acquaint military persons with many of the advantages the teaching profession offers the retired individual. Those most apparent include the appreciable supplement to the retiree's pay plus, in many instances, added retirement and dependent benefits through Social Security; and the extended summer vacation the typical academic year provides.

In addition, accepting a position in the teaching profession enables retired military personnel to continue their active service to the Nation by furthering its educational aims, creating responsible citizens, enriching their lives, and providing for future defense needs through the development of scientists, mathematicians and physicists.

WHAT should military personnel on active duty do to prepare themselves for teaching careers? In the first place, if an individual possesses a college degree or sufficient hours of academic credit to achieve a degree prior to retirement through off-duty study, he might become eligible to teach with a temporary license as soon as he retires. In most cases, however, in order to obtain full permanent certification to teach, he would be required to take certain specialized education courses after obtaining a position. These requirements vary from state to state. Generally speaking, a baccalaureate degree is required to teach in the high schools of most states while a master's degree or doctorate will be needed to teach in a college.

It is strongly recommended that the teacher candidate plan for his retirement career at least several years before he actually retires. It would be helpful if he would determine, first, what subjects and at what grade levels he wishes to teach. Second, he should decide which state or, more specifically, the community or institution in which he wishes to teach. Next, he should write to the Superintendent of Public Instruction of that state or, in the case of a college or university, to the president, dean or appropriate department head.

The initial letter should include the applicant's name, age, effective date of retirement, and a list of college-level courses completed—each with number of credits acquired and the names of institutions from which obtained. In addition, the candidate should list any courses presently being taken and those he plans to take, together with a description of the type teaching position being sought. If

the applicant has overlooked any academic requirements, they will no doubt be pointed out in the reply he receives from the educational representative.

HAVING determined through correspondence the academic requirements needed to qualify for a desired position, the next logical step is to obtain the necessary credits.

A valuable adjunct to the Army Program for Post-Retirement Careers in Teaching are the various Army programs leading to academic degrees while still on active duty. The Army's General Educational Development Program, for example, described in AR 621-5, spells out various means by which both officers and enlisted personnel could complete educational training. AR 350-260 also explains the Army's Enlisted Program in Civilian Educational Institutions, which provides opportunities for enlisted personnel to acquire baccalaureate degrees.

In addition, Army Education Centers are maintained at every Army installation with a troop strength of 750 or more. These Centers are headed by professional civilian educators who can counsel and guide military personnel seeking advice on educational matters, including information on the vital subject of teacher preparation.

TWO channels exist by which Army personnel may enroll for virtually any course required for teacher certification—tuition-assisted study after normal duty hours, and correspondence courses. While opportunities for resident courses with tuition assistance vary from post to post, the correspondence courses are available to qualified military personnel at nominal fees from over fifty accredited American universities through the United States Armed Forces Institute. The Department of Defense annually contracts to pay all lesson costs connected with this program.

EVEN after retirement, military personnel are aided in training for teaching positions both academically and financially. Economic aid for those who were on duty prior to 31 January 1955 is available until the same date in 1965 under provisions of the Veterans Readjustment Assistance Act of 1952 (Public Law 550—82d Congress).

Academic assistance in meeting the professional qualifications requisite to teaching is furnished by various school authorities and systems. For example Duke University at Durham, North Carolina, aided by a grant from the National Science Foundation, is sponsoring for the first time a sequence of mathematics, education and practice teaching courses which will lead, after one year, to a Master of Arts in teaching with a major in mathematics.

Similarly the school systems of the cities of Los Angeles and San Francisco have arranged for streamlined courses in teacher training with local colleges and universities

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"Education makes a people easy to lead, but difficult to drive; easy to govern, but impossible to enslave."

Lord Brougham

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which will permit retired military personnel with baccalaureate degrees in specified fields to attain teacher certification. Action also has been initiated by the University of Wisconsin to assist individuals who desire teaching careers, and many other colleges and univertities are doing likewise.

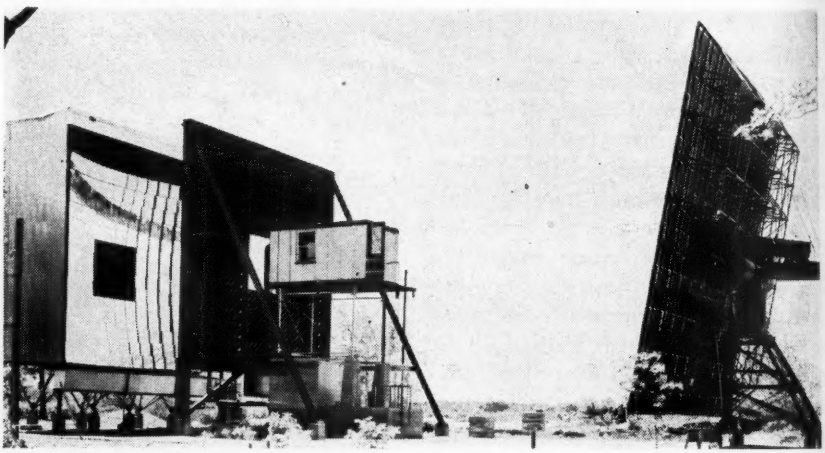
The United States Employment Service also has made arrangements to process applications for high school teaching positions in the fields of mathematics and science. Any State employment office will forward such applications to the state in which the individual desires to teach, for review by the appropriate school authorities.

WHEN General Maxwell D. Taylor, Chief of Staff, United States Army, accepted the National Education Association's 1957 Golden Key Award for his demonstrated belief in education as a bulwark of the Nation's defense, he declared:

"Unless the schools build men and women of character and ability capable of fulfilling the high places of the Nation, there is no amount of military preparation sufficient for our national security.

"To the service minded individual interested in an extension of his public service career, a post-retirement teacher career presents a stimulating challenge."

Solar Furnace for Quartermaster Research



HEAT approaching that emitted by a nuclear blast will be generated by the largest solar furnace in the country, recently installed at the Quartermaster Research and Engineering Center at Natick, Massachusetts. This heat—approaching the 5000 degree Fahrenheit mark—will be used for laboratory testing of materials being designed by the Quartermaster to protect soldiers against thermal effects of nuclear and other weapons.

Heat is generated as the heliostat—a large frame work of 355 mirrors (*right*)—"tracks" the sun onto the concentrator, located 96 feet away (*far left*). In the concentrator, 180 concave mirrors focus the rays to a single small point within the test chamber (*center*).

Conceived and developed by Quartermaster Corps scientists, the solar furnace was built by three prime contractors—American Optical Company, Southbridge, Massachusetts; D. S. Kennedy, Cohasset, Massachusetts; and the Silver-Troy Corporation, Newark, New Jersey.

Developing technical competence is the business of

The Soldier Instructor --- *KEY MAN IN DEFENSE*

Colonel A. L. Burke

WHILE spectacular new weapons, research, development, production efforts continue to dominate the headlines, the fact remains that, despite the advent of efficient and vastly complicated weapons systems, man is still the key factor on the battlefield, just as he has always been since the dawn of history.

Indeed, as never before, the effectiveness of our military forces depends on the skill and competence of the highly trained technicians who operate and maintain modern weapons and equipment.

Unheralded but nevertheless key men in the Nation's defense effort are the enlisted instructors in Army service schools who are training thousands of technicians each year to support the new weapons being produced by our laboratories and factories.

Typical of the many service schools training technicians for the United States armed forces and those of our allies is the United States Army Signal School at Fort Monmouth, New Jersey. Here at

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COLONEL A. L. BURKE, Signal Corps, is Director, Department of Specialist Training, U. S. Army Signal School, Fort Monmouth, New Jersey.

the home of the Signal Corps, located some 45 miles south of New York City, about four hundred enlisted men, working side by side with about the same number of civilian instructors, train thousands of communications-electronics specialists each year.

The Department of Specialist Training, to which most of the enlisted instructors of the Signal School are assigned, develops instructional material and conducts resident training leading to the award of technical Military Occupational Specialties (MOS) in a variety of courses. (*See Chart.*)

To be assigned as an instructor, an enlisted man must be qualified in his specialty, and preferably be a graduate of the course. He must show a desire to teach, a willingness to improve himself as a teacher, and must be able to express his thoughts lucidly and forcefully. While experience in the field of his specialty is considered desirable, this is not an absolute requirement, since many of the instructors are in their first enlistment. Finally, the prospective instructor must complete a special training course.

ENLISTED instructors come primarily from two sources. First are those from other commands who have been recognized as potential instructors by their commanders. Most men in this category are in their second or later enlistment, and consequently have field experience which increases their potential as instructors. About one-half of enlisted instructors in the Department are in this group.

The remaining enlisted instructors are taken directly from graduating classes of the school. Instructors and supervisors are constantly on the alert to spot promising students who are interested in such an assignment.

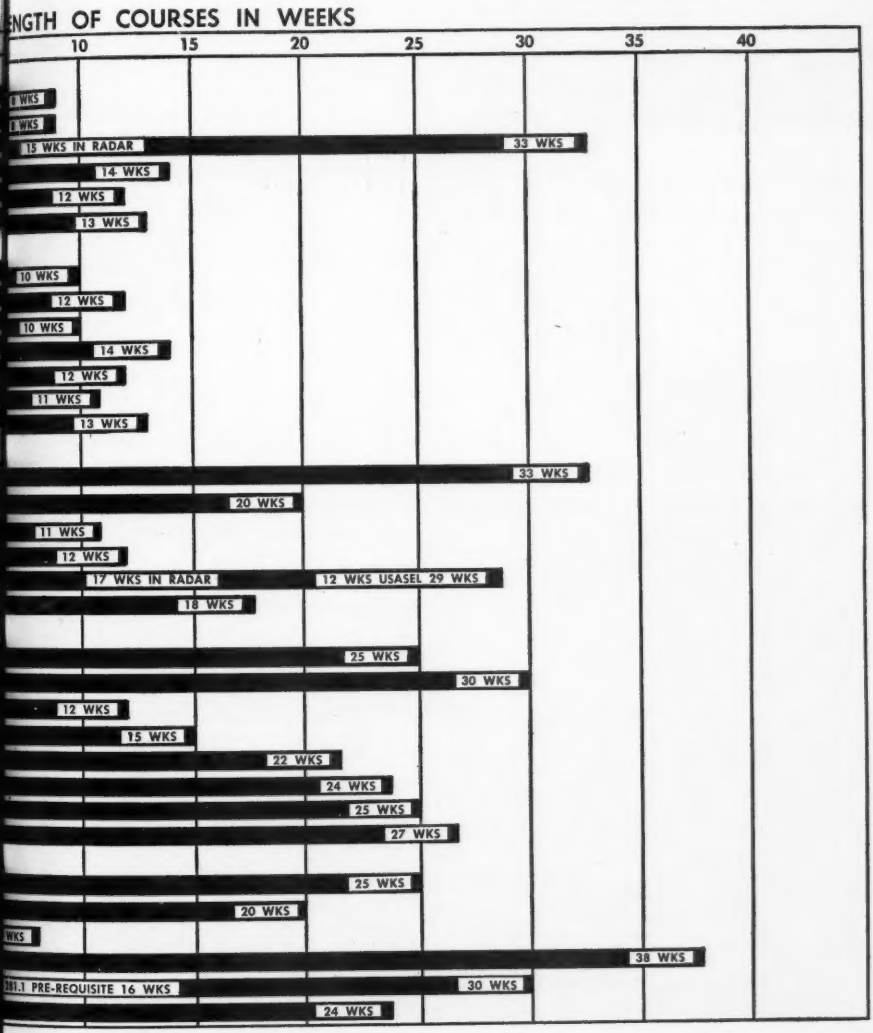
The instructor training course embraces an intensive two weeks of schooling in principles of learning and correct techniques of teaching. Here the men are taught effective speaking, preparation and use of lesson plans, proper use of training aids, correct techniques of oral

COURSE	MOS
COUNTERMEASURES DIVISION	
Radar CM Equipment Operations	202.1
Variable Time Fuse CM Operations	203.1
Electronic Warfare Equip Repair	283.1
CM Search & Analysis	204.1
Electronic Warfare Officer	0143–0144
Meteorological Observation	905.1
PICTORIAL DIVISION	
Photo Unit Commander	8500
Still Photography	841.1
Photographic Lab Operations	843.1
Motion Picture Photography	841.2
Camera Equip Repair	401.1
Projector Equip Repair	401.2
Audio Specialist	842.2
RADAR DIVISION	
Radar Repair	282.1
Ground Control Approach Equip Repair	282.2
Ordnance Electronics (Entry)	230.0–240.0
Atomic Weapons Electronic (Entry)	250.0 260.0
Radio Wave Propagation	287.1
Radar Maint & Repair Officer	0145
RADIO DIVISION	
Field Radio Repair	296.1
Microwave Radio Equip Repair	281.1
Microwave Radio Officer	0503
FXD Station Radio Equip Operation	270.0
FXD Station Receiver Repair	271.1
FXD Station Xmtr Repair	272.1
Carrier Equipment Repair (Fixed)	297.1
Television Equip Repair	285.1
WIRE DIVISION	
Dial Central Office Repair	332.1
Teletypewriter Equip Repair	341.1
Cryptomaterial Specialist	985.1
General Crypto Equip Repair	342.2
FXD Ciphony Repair	343.1
FXD Crypto Equip Repair	345.1

questioning, classroom management, and preparation and administration of written and practical tests. Instruction is handled by educational specialists of the Instructor Training Branch, and by visiting experts and authorities. Trainees are evaluated on the basis of their presentation of short speeches, lesson plans, quizzes and by a final examination.

Graduates are assigned to teach some phase of the thirty-odd specialist courses in the Department of Specialist Training. During the first few months, they are under the supervision and guidance of a more experienced instructor, and are systematically observed by senior instructors, supervisors, experts from the Instructor Training Branch and personnel of the department staff divisions.

Initially, the new instructor has



Students put classroom theory to practical use during a field training exercise, here employing test equipment on a radar set.

a limited number of hours on the platform. A large part of his day is devoted to observation of experienced instructors, research and study. As he gains in experience, in confidence and in technical knowledge he gradually takes over a larger part of the instruction, and when fully qualified will be on the platform for twenty or more hours a week.

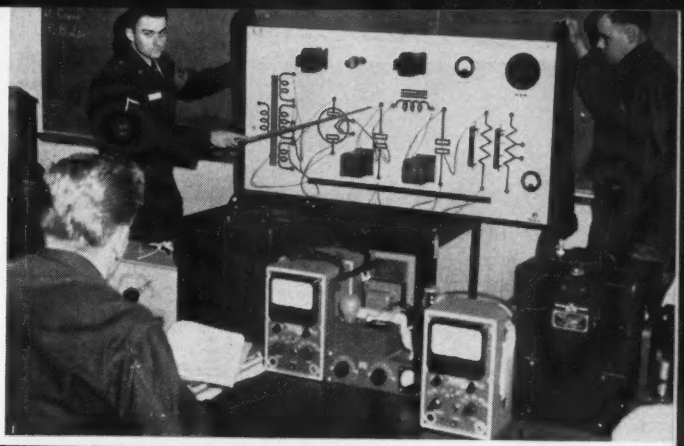
A policy of rotating instructors is followed in the department. This practice improves the technical background of instructors, keeps their interest high, prevents stagnation, and makes for flexibility in scheduling instruction to meet changing requirements.

Instructors are encouraged to improve their technical knowledge and teaching proficiency by study in the school library, by enrolling in courses offered by the Department of Non-Resident Instruction, and by enrolling in college-level courses offered on the post.

AN instructor's duties are not limited, by any means, to teaching.

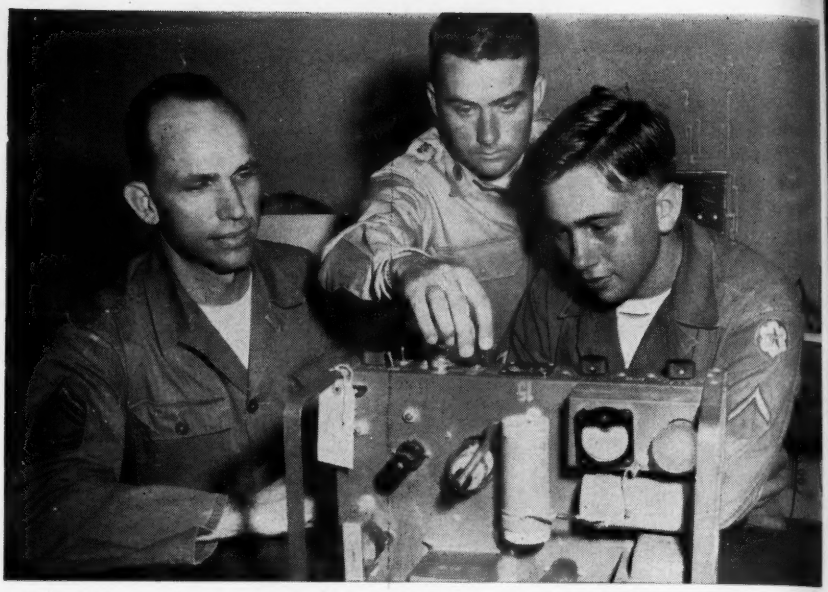
Lively interest is apparent as an instructor explains a schematic diagram in a photography course.

Power system supply is made clear through use of a training aid as students learn to repair fixed station transmitter equipment.



How to locate causes of trouble in radio receivers is taught by an enlisted instructor in the Fixed Station Receiver Repair Course.

Just what makes a teletype set work is explained above while, at left, an instructor demonstrates the adjusting and tuning of a radio transmitter.



Students in a microwave course receive instruction in the fine points of tuning a training transmitter.

He must counsel students in his class, particularly those who are having difficulty. He has to display patience and tact in dealing with slow students, but at the same time must find ways to challenge the better students.

Although he teaches from a lesson plan approved by the school, he is permitted considerable freedom in the manner of its presentation. He revises lesson plans and writes new ones, submits requests for new training aids, and makes suggestions for improving the quality of instruction.

In addition, he has the more prosaic administrative duties of maintaining class records, supervising administration of tests, and performing first echelon maintenance on equipment used by his students.

As a means of identifying qualified instructors, the figure "8" is added as the fifth digit of the Military Occupational Specialty number. At present, enlisted men so identified are not placed on oversea orders before the end of a normal tour at the school unless an oversea levy specifically calls for an instructor or unless an urgent requirement cannot be met by any other means.

EVERY possible effort is made to assist the instructor in his primary task of teaching. In addition to approved programs of instruction and lesson plans, he is provided with training aids and supplies by the Academic Services Department.

A closed loop television system serves about half the classrooms in the department, and plans are being made to extend it to all classrooms. This system brings training films, kinescope recordings and live presentations directly to the instructor. The live television program is being expanded with the more experienced instructors of the school going before the television camera. One important by-product is that less experienced instructors

profit from observation of instructional techniques of the older, more experienced instructors.

THE typical instructor is in his middle twenties, is at least a high school graduate and is in the latter part of his first enlistment or the early part of his second one.

As a means of recognizing outstanding performance, an enlisted Instructor of the Month is selected by a Board of Officers appointed by the department Director. Candidates are nominated by division chiefs upon recommendation of supervisors and course chiefs. Final selection is based on such factors as over-all proficiency as an instructor, leadership qualities, military appearance, individual effort and study in technical and professional fields, and contributions to the improvement of school facilities and procedures. The candidate selected by the Board receives a letter of commendation from the department Director, and equally important perhaps, a three-day pass from the Regimental Commander.

A comment often heard from instructors as they leave the school is that teaching has increased their self-confidence and developed in them the ability to project themselves, or any other product, tangible or intangible. Unquestionably, Army teaching experience rounds out and develops a man, makes him a better specialist and improves his leadership abilities.

AT the Fort Monmouth Department of Specialist Training, as in other training schools throughout the Army, it is recognized that quality of instruction must depend in large measure on the initiative, imagination, energy, professional competence and devotion to duty of the soldier-instructor. For this reason efforts are continuously underway to improve the enlisted instructor corps by seeking out soldiers who are qualified and who desire to teach.

For those who meet the prerequisites, a tour as an instructor in a United States Army service school will give a satisfaction and sense of accomplishment to be found in very few other jobs.

MISSILE SPECIALIST TRAINING

INDIVIDUALS who can qualify may now enlist or re-enlist in advanced specialist guided missile courses at the U. S. Army Ordance Guided Missile School, Redstone Arsenal, Alabama, or in advanced ordnance courses at the Armed Forces Special Weapons Project, Sandia Base, New Mexico.

Under provisions of recently published AR 601-236, the Army is expected to uncover much-needed Regular Army enlisted talent for career training in the Ordnance guided missile and special weapons fields. Applicants must successfully complete the Electronics Entry course at the Army Signal School, Fort Monmouth, New Jersey, after which the Army will send them to the advanced course of their choice.

It is expected that more men will be encouraged to enlist for advanced specialist courses such as Nike Launcher Control Systems Repair or Nike Track Radar Systems Repair. Other specialist training includes courses in Corporal Radar Repair, Lacrosse Guidance System Repair, Nike Acquisition Radar and Computer Systems Repair, and Army Nuclear Assembly.

Enlisted men are urged to consult the *Army School Catalog*, DA Pamphlet 20-21, May 1957, and their local Military Personnel Officer for information concerning eligibility for the training.

Electronic computers would provide the

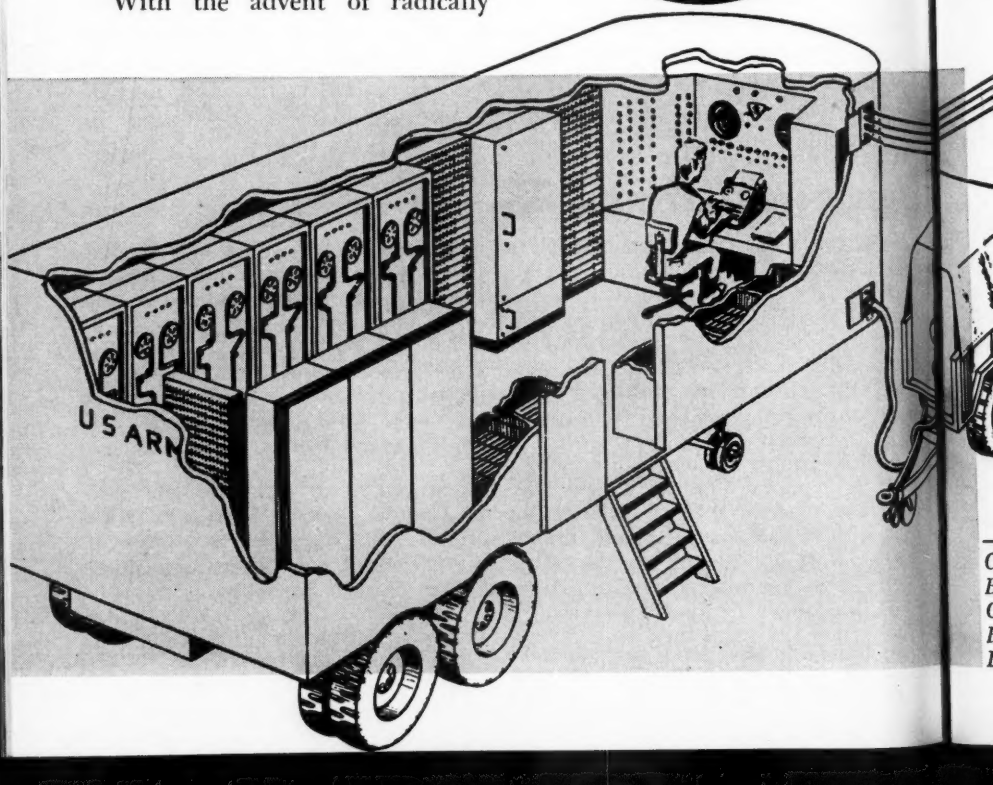
RAPID-FIRE ANSWERS

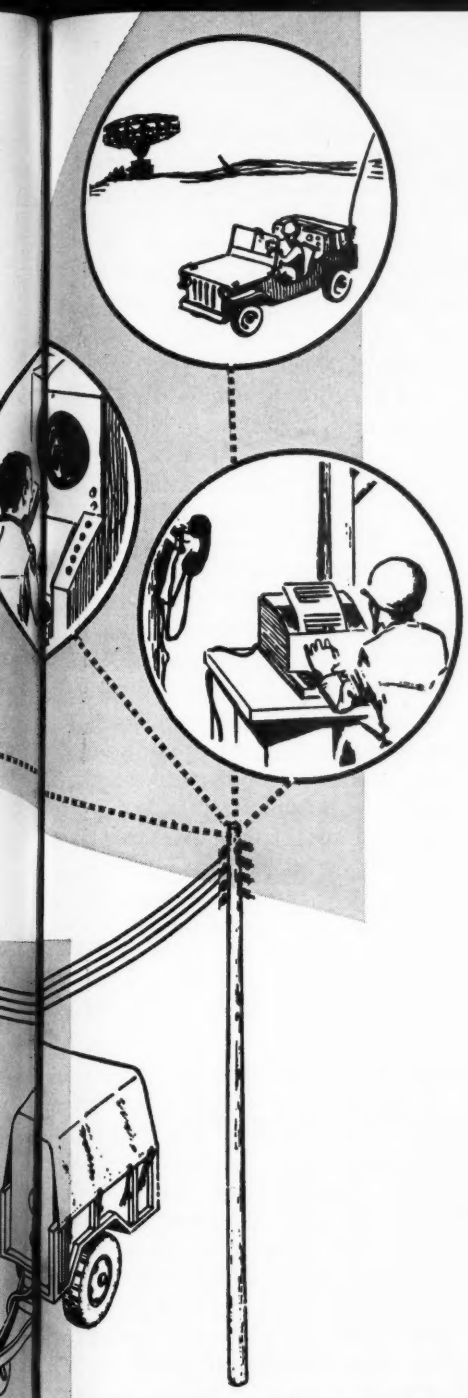
required for personnel management of the field army of the future.

Colonel Charles T. Campbell

KEEPING pace with the rapid changes of an Army reorganizing itself along Pentomic lines has posed difficult problems for all of the support services, as they strive to keep ahead of the swift onrush of developments in new weapons, doctrine and concepts of fighting on nuclear battlefields.

With the advent of radically





new techniques made possible by the era of electronic computers, The Adjutant General's Office is planning not only on keeping pace but on moving ahead in the processing of data necessary for effective personnel and manpower management.

This confidence in electronic computers is shared by the Nation's industrial leaders. Ralph J. Cordiner, Chairman of the General Electric Company, views it this way: "When the history of our age is written, I think it will record three profoundly important technological developments: Nuclear energy which tremendously increases the amount of *energy* available to do the world's work; automation which greatly increases man's ability to use *tools;* and computers which multiply man's ability to do *mental work.* Some of our engineers believe that of these three, the computer will bring the greatest benefit to man."

Plans for the long-range future envisage that widely dispersed units will be able to provide and obtain essential personnel information through remote input and output devices. The system will utilize mobile digital computers (MOBIDIC) connected by a high-speed and secure communications network. Many manual records would be eliminated through substitution of magnetic tape. Data would be mechanized at their source, eliminating subsequent manual handling. By this advanced system, machines operating under human guidance would deal directly with other machines to reduce the human workload and give greater accuracy and efficiency in a score of data processsing areas.

COLONEL CHARLES T. CAMPBELL, Adjutant General's Corps, is Chief, Statistical and Accounting Branch, the Adjutant General's Office, Department of the Army.

THE Signal Corps has research and development responsibility for the MOBIDIC (MOBile DIgital Computer), a prototype of which will be available by late 1959. This advanced computer system will be based on experiences gained with the existing Automatic Data Processing System (ADPS), itself a marvel of efficiency that has saved office space, manhours and money as it improved personnel and manpower management affecting every individual in the Army.

The Automatic Data Processing System has been in operation scarcely more than a year, having been installed by The Adjutant General in April 1957. In that short time ADPS has permitted personnel policies and actions affecting individuals to be based on more accurate, timely and complete personnel information than was possible under previous methods—efficient and accurate as they were.

Under ADPS, jobs which formerly required weeks can now be completed in days. The inventory and projection of officer strength can be completed 30 days earlier than previously. Many errors in data previously undetected have been found and corrected. Since inception of the system, the Statistical and Accounting Branch, Office of the Adjutant General, has reduced its personnel some 14 percent but has assumed over 10,000 man-hours of additional workload. Over 600,000 punched cards and the cabinets to store them have been replaced by eleven reels of magnetic tape.

All of these accomplishments are impressive enough, but drawing on this experience The Adjutant General's Office now is seeking to provide similar advantages in personnel and manpower management for field armies. The long-range goal envisages MOBIDIC computer equipment with capabilities far in excess of that presently available, especially designed for military requirements.

DEVELOPING THE SYSTEM

THE Adjutant General's Office is a pioneer in the use of electronic data processing equipment in the fields of personnel management and record keeping. Its investigations into functions that could be included in an ADPS were begun in 1954. From these studies it has developed an operational system of personnel accounting which has proved invaluable to management.

With the electronic data processing machine now in operation at Headquarters, Department of the Army, the automatic processing of large volumes of data at extremely fast speeds is playing an important part in the career planning and assignment of commissioned and warrant officers of the active Army, as well as in strength reporting of all personnel on active duty. (See "Streamlining Personnel Record Keeping," October 1956 DIGEST.)

More than two years were required from initial studies until actual operation began. A committee appointed in April 1955 concluded that an entirely new system embracing rethinking and remodeling of data processing from unit on up to Department of the Army level would require several years of planning. Consequently a less radical approach was recommended to allow concentration of initial efforts in a more limited field of personnel and manpower management.

By January 1956 a project officer had been appointed in the Statistical and Accounting Branch, and began the task of putting plans into effect. The Branch obtained the services of several qualified enlisted programmers, who were former employees of the manufacturer of the data processing machine that was to be used.

Then came the task of obtaining new, clear-cut requirements from report-using agencies, determination of specific areas to be programmed, preparation and testing of programs, development of a tape library system, and the working out of procedural details such as program numbering, tape numbering, and the interrelation of program, tape and job numbers into an easily identifiable system.

All together, some half a hundred programs were written and tested. Program testing was accomplished at the manufacturer's offices and on two machines that had already been installed in the Washington area. Thus by the time the machine and its associated equipment arrived in mid-March 1957, most of the preliminary planning and testing had been carried out.

By the end of March, customer engineers from the manufacturer had checked out equipment and a test was initiated involving the Adjutant General, Armor, Army Nurse Corps and Medical Service Corps branches. This test utilized live data from the field and Department of the Army sources, as opposed to previous test data which had been simulated by the programmers. Deficiencies were discovered and corrected, and actual operations were begun in April.

FIRST operational step was creation of the Officers Master Tape Record, usually called more simply the Master Tape. This comprises eleven reels of magnetic tape containing more information than was previously provided by hundreds of thousands of punched cards. Formerly, to record the necessary data, as many as seven punched cards had to be maintained for each

ON ELECTRONIC AIDS IN COMBAT

"Coupled with a high-speed communication system, electronic data processing equipment can quickly analyze information about enemy forces to provide the commander with data he must have to arrive at sound decisions. We are using electronic data processing in some of our logistical activities, and we are rapidly adapting this technique for other uses.

"One of our fastest-growing infants, electronic data processing, will in the very near future provide us with a vast number of advantages that we do not yet have, such as storage of data, computations using this 'memory', analysis of information and similar functions for our combat and support activities. This will give the commander vitally necessary information, faster, in greater quantities and in more usable form than he has ever had before.

Lt. Gen. Arthur G. Trudeau, Chief of Army Research and Development, before Armed Forces Communications and Electronics Association, Washington, D. C., 1 April 1958.

officer. Today two inches of the tape containing 395 characters provides a greater wealth of data—and it is more timely, more accurate and more readily available.

The tape was created from half a million punched cards maintained by TAGO, plus another 100,000 obtained from the field. In compiling it, about 40,000 data errors in the punched card files were detected as a result of the computer's logical ability. Correcting them was a major task requiring nearly four months to complete.

For some time, dual operations were carried on to enable ADP personnel to gain added experience and to correct any weaknesses that might develop. By May 1957 it became apparent that ADP-prepared officer qualification reports were so much better than those prepared by electrical accounting machines that dual qualification reports were discontinued.

Currently a new up-to-date master tape is produced daily to reflect all officer personnel changes received within the previous work day. Although more than 70 different types of changes may affect a master record, the updating cycle requires less than two hours. This is accomplished by use of 2,500 instructions placed into the memory unit of the machine, which automatically records each datum in its proper place in the master tape. Records for which there are no changes merely pass from the old tape onto the new one.

Besides the new master tape, a subsidiary is produced, consisting of accession and separation statistical records; locator records based on new assignments; command strength summaries; statistical records of promotions, demotions, category changes and the like. This output totals about 2,000 records each day, and is used for statistical reports, correction of errors, and notifications to field commands.

DATA SOURCES

THE various personnel changes which have affected—or will affect in the future—the career of active duty officers are received and processed. They come from three sources—Headquarters, Department of the Army for changes pertaining to name, rank, service number, branch of service, date of rank, pilot status, category and so on; from unit Personnel Sections which forward the Officer Qualification Record (DA Form 66) and changes to the same record (DA Form 66A); and from Zone of Interior Armies, major oversea commands, Fort Dix, Fort Lewis and Fort Polk which use the Signal Corps world-wide transceiver network to forward report changes in punch-card form pertaining to officer accession, integration, separation or reassignment.

All major commands now can transmit data to Department of the Army and to other commands through use of the world-wide network of transceivers. These machines transmit data from punched cards over telephone lines or radio circuits, with the receiving machine punching the data directly into cards. The system overcomes mail lag and provides information in a form ready for the computer.

As one example, use of transceiver communications with Europe now permits direct assignment of enlisted personnel to a unit in Europe while the soldier is still in

the United States. This has eliminated need for the European Replacement Depot and further has reduced transportation costs after the soldier arrives in Europe. A plan is being developed which will permit similar unit-to-unit processing for all enlisted reassignments.

SOME 120 reports are prepared from the ADP system on a recurring basis. These include individual name listings for management and statistical purposes, as well as tabulations for strength reporting. About ten special reports are prepared during a normal month.

An evaluation of the system so far shows improved timeliness, accuracy and quantity of information obtained, as compared to that formerly obtained by punched cards fed through electrical accounting machines (EAM).

In the area of timeliness, for instance, the Overall Efficiency Index is compiled in four days by ADP equipment whereas six weeks formerly were required by EAM methods. The officer portion of the CSGPA-45 Report (an inventory and projection of Army strength) now reflects information that is 30 days more current than previously.

To insure greater accuracy, ADP machines have a series of built-in devices that check on their work. The programmers also create additional checks to detect and eliminate error conditions.

DURING the preparation phase of the ADPS study, the report-using agencies were asked to state what information they needed to do their jobs better, and the master record and programs were built around these added requirements. With more items of information now included on the master tape than were previously available, it is often possible to prepare one-time reports on extremely short notice —a service previously considered impossible.

Building on this solid background of experience, expansion of the Automatic Data Processing System through use of mobile digital computers for the field army of the future will provide capabilities far in excess of those presently available. Besides reducing the personnel management workload of units overseas, record keeping will be swifter, more efficient and more accurate, and The Adjutant General's Office will be better able to support the more flexible, harder hitting tactical organizations that are now coming into being.

Presenting Mohawk

PROCUREMENT has been authorized of 35 new type turbo-prop aircraft specially designed for Army requirements. They will encompass nine different prototype models of the Mohawk, being built by Grumman Aircraft Engineering Corporation, Bethpage, L. I., New York. The prototype models are scheduled for extensive test and evaluation by the Navy's Bureau of Aeronautics.

With an empty weight of 7,700 pounds, the Mohawk will be one of the largest fixed-wing airplanes to enter Army service. It is designed to operate from small unimproved fields, has two seats, is expected to develop maximum level flight speed over 200 knots and a stall speed of 55 knots. The Mohawk is expected to have about the same short take-off and landing capabilities as the Army's present light single-engine airplanes.

Keep your organization current with the latest training materials by referring to this section in each issue.

TRAINING LITERATURE

While the following new literature will be published shortly, units are cautioned *NOT* to requisition copies until receipt of automatic initial distribution or the items are listed in DA Pamphlets 310-1, 310-3, or 310-4:

Communication Security (U). FM 32 - ( ) provides guidance to all U. S. Army personnel on matters pertaining to communications security—*i.e.*, transmission, cryptographic, and physical security.

Navigation for Army Aviation. TM 1- ( ), an instructional text for students undergoing Army aviation training, covers basic concepts of air navigation, radio navigational aids and their employment, and facilities and procedures peculiar to navigation under instrument flight conditions.

Capabilities and Employment of Toxic Chemicals. TM 3-200 with classified supplement (TM 3-200A) provides a detailed planning guide for staff specialists and chemical officers in tactical employment of toxic chemicals.

Aerial Delivery of Supplies and Equipment: Rigging M56, Self Propelled, Full Tracked, 90mm Gun. TM 10-500-22 illustrates techniques for rigging the M56, self-propelled, full-tracked, 90mm gun, for aerial delivery by parachute in temperate zones.

Aerial Delivery of Supplies and Equipment: Rigging D6 Airborne Tractor. TM 10-500-21 outlines and illustrates techniques for rigging the D6 airborne tractor for aerial delivery in temperate zones.

Revisions scheduled for publication:

FM 3-5, "Tactics and Techniques of Chemical, Biological, and Radiological Warfare"—revision of 1954 edition.

FM 7-40, "Infantry Division Battle Group "—revision of 1950 edition.

FM 21-40, "Defense Against CBR Attack" —revision of 1954 edition.

FM 21-41, "Soldiers Manual for Defense Against CBR Attack"—revision of 1953 edition.

FM 22-100, "Military Leadership"—revision of 1953 edition.

FM 25-10, "Motor Transportation, Operations"—revision of 1953 edition.

TC 10, "Atomic Demolition Munitions (U)"—revision of 1954 edition.

TM 1-215, "Attitude Instrument Flying" —revision of 1955 edition.

ROTCM 145-4-2, "The Junior ROTC Manual, Vol II"—revision of 1955 edition.

ROTCM 145-70, "Branches of the Army" —revision of 1954 edition.

TRAINING AIDS

Training Films recently released:

TF 7-2580, "Helicopter-borne Operations.

TF 8-2579, "Dental Health."

TF 11-2487, "Radio Interference—I."

TF 11-2488, "Radio Interference—II."

TF 17-2587, "Armor Team Security."

TF 41-2590, "Military Government in an Enemy City—Part II—Public Safety."

TF 41-2591, "Military Government in an Enemy City—Part III—Public Health."

TF 55-2585, "DUKW Operations—Part I —Land and Water Driving Procedures."

MF 11-8924, "Signals for Missiles."

MF 20-8952, "Defensive Driving Series—The Art of Being Passed."

MF 20-8953, "Defensive Driving Series—How to Pass Safely."

MF 46-8903, "Helicopter—Vibrations and Resonance—Part I—Vibrations in the H-13."

GF 10-36, "Warehousing Series—Part I—Storage Procedures."

GF 10-37, "Warehousing Series—Part II—Aisle Arrangement."

GF 10-38, "Warehousing Series—Part III —Bins, Racks and Box Pallets."

PMF 5325, "Electromyograph Procedures."

DA Transparencies recently distributed:

T 9-2-21, "Howitzer, 105mm, Self-Propelled T98E1, Left Side View."
T 9-2-22, "Gun, 90mm Self-Propelled, T101."
T 9-2-23, "Howitzer, 155mm Self-Propelled, T99E1."
T 9-2-24, "Relation of Tube Length and Bore Diameter (General Application)."
T 9-2-26, "Operation of Semiautomatic Breech Mechanism (AA Application)."
T 9-2-28, "Breechblock, Welin Stepped Thread (Field Artillery)."
T 9-2-29, "Mechanism, Firing, M1."
T 9-2-32, "Howitzer 155mm M1 Top Carriage and Bottom Carriage-Cutaway View Showing Pintle, Pintle Bearing and Connection."
T 9-2-33, "Top and Bottom Carriage Assembly, Mount M75."
T 9-2-38, "Recoil Mechanism M2A1."
T 9-2-46, "Elevating Mechanism, Carriage, Howitzer, 240mm, M1."
T 9-2-47, "Mount, Gun AA, 120mm, M1, M1A1."
T 9-2-48, "Howitzer, 155mm, M1 Elevating Mechanism Assembled and Phantom Views."
T 9-2-49, "Equilibrator and Elevating Mechanism Assembly for Mount M75."
T 9-2-50, "Howitzer, 155mm, M1 Traversing Mechanism Assembled and Phantom Views."
T 9-2-52, "Relay Emergency Valve Exhaust or Quick Release (For Prime Mover and Trailer 155mm Howitzer, 155mm Gun and 8" Howitzer)."
T 9-2-53, "Relay Emergency Valve Normal Application."
T 9-2-54, "Valve, Emergency Relay, Charging Air Reservoir."
T 9-2-55, "Emergency Relay Valve Emergency Application."
T 9-2-57, "Firing Jack, Carriage, Howitzer, 155mm, M1A2."
T 9-2-58G, "Tank, 90m Gun, M47 Complete Pulsing Relay Circuit (60 Degree)."
T 9-2-61, "Gun, 75mm, T83E1 on Mount T69-Antiaircraft Fire Control System, T38."
T 9-2-108, "Fire Unit Analyzer, 600 MPH, Altitude 6,000 Feet."

ARMY EXTENSION COURSES

New Subcourses recently published:

Administration and Personnel Management III, Med Subcourse 14. U. S. Army Medical Service School. Organization of hospitals in continental United States and in theater of operations.

Human Relations I, Med Subcourse 15. U. S. Army Medical Service School. Social structure of an organization including organization of an office; staff and line relationships; decision making; executive development.

Combat Psychiatry, Med Subcourse 31. U. S. Army Medical Service School. General orientation to combat psychiatry.

Medical Aspects of Military Law II, Med Subcourse 208. U. S. Army Medical Service School. Tort liabilities of hospitals and hospital personnel; rules of evidence and contractual problems applied to hospital administration.

Staffing the Nursing Service II, Med Subcourse 328, U. S. Army Medical Service School. Standards and methods of computing nursing service workloads for military medical treatment facilities; principles and methods of planning time schedules; conservation of nursing service personnel.

Wheeled Vehicle Engine Maintenance, Ord Subcourse 87, U. S. Army Ordnance School. Characteristics of representative military vehicle engines; removal, installation, disassembly, rebuild, and assembly of a typical military engine; troubleshooting; tuneup procedures.

Guided Missile Logistics, Ord Subcourse 157, U. S. Army Ordnance School. Principles of guided missiles ordnance service for class II, IV, and V supplies; field supply principles peculiar to guided missile materiel; special requisitioning procedures; guided missile maintenance support; transportation and packaging requirements; related technical services in guided missile logistics.

Revisions recently published:

Military Boards and Investigations, TAG Subcourse 36, The Adjutant General's School. Revision of 1952 edition.

Army Personnel Management I, TAG Subcourse 33, The Adjutant General's School. Revision of 1956 edition.

Officer Career Planning, TAG Subcourse 34, The Adjutant General's School. Revision of 1957 edition.

Command and Staff Procedures I, TAG Subcourse 57, The Adjutant General's School. Revision of 1956 edition.

Principles and Techniques of Recruiting, TAG Subcourse 60, The Adjutant General's School. Revision of 1957 edition.

PARAGRAPHS from the Pentagon and the Field

Infantry Conference

More than 200 outstanding Infantry leaders are expected to attend the world-wide Infantry conference, first to be staged by the Army since 1946, at the U. S. Army Infantry School, Fort Benning, Georgia, 2-5 December. Purpose of the conference is to provide a comprehensive view of the latest technological advances and organizational and doctrinal changes. Presentations will be made by representatives of Department of the Army, U. S. Continental Army Command, Command and General Staff College, and the Infantry School.

Redstone Firing Record

The thirty-third successful launching of a Redstone ballistic missile during a two year period has been accomplished at the Atlantic Missile Range, Cape Canaveral, Florida. The missile was one of the last that will be fired as a research and development vehicle, since Redstone now is operational and is in the hands of troops. Of all firings since the first launching in 1953, only three proved unsuccessful in the particular type of test conducted.

School for MAAG Personnel

The newly established Military Assistance Institute, Department of Defense, will conduct ten or twelve classes each year at Arlington, Virginia, to instruct military personnel selected for overseas assignments with Military Assistance Advisory Groups in the aims, missions and role of the U. S. Military Assistance Program. Each course will run for four weeks, and will be attended by about 100 officers of the Armed Forces.

Rifle Company Test

Capabilities of a proposed 191-man rifle company have undergone tests in an operation directed by U. S. Continental Army Command at Fort Benning, Georgia. The test was designed to determine feasibility of reducing size of the current company to permit an additional company-size unit in the battle group without increasing total personnel strength. Such a procedure would add a fifth rifle company, creating a pentagonal structure for the 1,427-man battle group.

Pershing Subcontractors

Four major subcontractors have been selected for the Army's new solid propellant Pershing missile system, of which the Martin Company, Orlando, Florida, is prime contractor. The missile is a selective range, two-stage, inertially guided ballistic missile being developed for the Ordnance Corps. Major subcontractors are Bendix Eclipse-Pioneer Division, Teterboro, New Jersey; Bulova Watch Company, Long Island, New York; Thiokol Chemical Corporation, Huntsville, Alabama; and Thompson Products Accessories Division, Cleveland, Ohio.

Sports Competitions

Dates for the 1959 Interservice Championships, National Championships and Pan American Games Trials have been announced in Department of Army Circular 28-12.

Dates and places for the Army sports eliminations: Baseball, 15 July-13 August, Fort Carson, Colorado; Basketball, 10 February-11 March, Presidio of San Francisco; Boxing, 1-30 March, Fort Benning, Georgia; Golf, 25-29 September, Fort George G. Meade, Maryland; Swimming and Diving, 1-30 July, Fort Rucker, Alabama; Tennis, 5 July-3 August, U. S. Military Academy; Track and Field, 15 May-13 June, Fort Lee, Virginia; Volleyball, 26 March-24 April, Fort Riley, Kansas; Wrestling, 1-30 March, Fort Sam Houston, Texas.

Dates for Interservice Championships: Basketball, 26-28 March, Air Force host; Boxing, 1-2 April, Fort Benning, Army

host; Golf, 6-9 October, Navy host; Tennis, 11-15 August, Marine Corps host.

Dates for National Championships and Pan American Games Trials: Basketball, 16-21 March, Denver; Boxing, to be determined; Swimming and Diving to be determined; Track and Field, 20-21 June, Boulder, Colorado; Wrestling, to be determined.

Nurse and Dietitian Programs

Two Department of the Army programs designed to procure officers for active duty as nurses and dietitians are outlined in newly published Army Regulations 601-19.

Each year not to exceed 250 selected student nurses and 30 home economics students matriculated in schools and properly qualified, may be enlisted as Reserves of the Army for service in the Women's Army Corps, Army Reserve, for participation in these programs. Students may be enlisted and concurrently ordered to active duty with station at their respective schools to continue studies for a diploma or bachelor's degree in nursing or in foods and nutrition or institution management.

Each student will be required to accept an appointment in the Army Reserve or the Army of the United States as a second lieutenant in the Army Nurse Corps or Army Medical Specialist Corps. Those spending 12 months or less in a civilian institution will be obligated for 24 months service; those attending between 12 and 24 months will be obligated to 36 months service.

Airborne Training Rescheduled

A new system of fewer students per class, but quadrupling the number of classes, has been put into effect by the Basic Airborne Committee of the Airborne-Air Mobility Department at the U. S. Army Infantry School. Previously each class averaged about 200 potential paratroopers, conducted in a one-month cycle. Now, one new smaller class of about 50 will start each week so that a class will be finishing each week of the month.

New Dough Raising Method

Field tests of an instant bread mix are now being conducted and if successful will revolutionize present methods of supplying fresh bread to armies in the field. Developed by the Army Quartermaster Corps, the new mix substitutes chemical leavening agents and dry flavoring materials for conventional fermentation processes, thus reducing by 70 percent the time required to produce baked bread. If successful, the new process is expected to provide the basis for designing small mobile field bakeries that can be attached to a combat group of 2,000 men.

IMPROVED MOBILITY MEANS

IMPROVED mobility for the Army by land, sea and air is forecast by recent award of contracts in widely separated fields.

In one, let by the Air Force for the Army, the Allison Division of General Motors, Indianapolis, Indiana, has been awarded a $3,200,000 contract for development of a lightweight 250-horsepower turbine aircraft engine which weighs only a quarter as much as conventional piston engines in use. Less than 39 inches long and weighing only 106 pounds, the prop-jet model will make possible lighter and less costly aircraft with increased performance. The Army plans to use it in observation and utility aircraft.

Another turbo-shaft model, weighing only 90 pounds and less than 35 inches long, may be used for helicopters, installed in water craft, or used as a standby powerplant for missile launchers, emergency vehicles and the like.

IN still another field, a contract for development of two new wheeled amphibians—one of five-ton and one of fifteen-ton payload—has been let to the Ingersoll Kalamazoo Division of Borg-Warner Corporation, Kalamazoo, Michigan.

The vehicles will be designated "amphibious lighters" and together with the already operational 60-ton "Barc" will give the Army a three-member amphibious family. The new amphibians will feature lightweight aluminum construction, four-wheel drive, interchangeability of engines and power trains, large-diameter low-pressure tires. The development schedule calls for delivery of the first prototypes by August 1959.

Army Research Office Established

Culminating extensive studies as to best method for insuring a vigorous, integrated research program responsive to growing requirements of the Army as a whole, the Army Research Office (ARO) has been established at Arlington Hall Station, Virginia. The new unit is an integral part of the Office of the Chief of Army Research and Development.

Under the new organization there will be no fundamental changes in research operations. Operations of laboratories, and letting of contracts, will continue to be the responsibility of the Technical Services. ARO will assist the Technical Services by planning and coordinating a research program of common Army-wide interest.

Such an arrangement will afford the advantage of centralized planning and decentralized execution required for proper administration of a world-wide program involving approximately 2,000 research tasks. To accomplish this mission ARO has been organized into six divisions—Research Analysis, Research Actions, Research Support, Human Factors Research, Polar Research and Operations Research Divisions. The last named will be located in the Pentagon.

England to U. S. via Moon

It's some three thousand miles from England to Fort Monmouth, New Jersey, but nearly half a million miles when radio signals are sent via the moon. Pulses beamed at the moon recently by the world's largest rotating antenna, the 250-foot dish at the Jodrell Bank Experiment in England, were picked up for almost an hour by the 50-foot Diana dish at the U. S. Army Signal Research and Development Laboratory at Fort Monmouth. Purpose of the experiment was to study strength and distortion of the moon-bounce radio waves. Each pulse took two and a half seconds to reach Fort Monmouth. The studies are expected to pave the way for future systems to send signals across the Atlantic.

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ON THE ARMY EDUCATIONAL SYSTEM

"Not only do we train recruits, but we run the schools at all levels, from the lowest, short term specialty to the advanced courses for the intellectual and professional development of our senior officers. This educational system includes a total of 35 schools ranging for officers from the United States Military Academy to the Army War College. A wide variety of technical and specialist schools are available for all ranks. Additionally, the development of selected individuals is furthered by an extensive graduate training program in civilian universities, together with cross-education in the schools of the other Armed Forces and at the higher national and joint levels. In Fiscal Year 1958 Army-conducted schools taught some 700 courses, graduating over 150,000 students, including foreign military personnel from 62 nations."

General Maxwell D. Taylor, Army Chief of Staff,
before the United States Conference of Mayors,
Miami Beach, Florida, 13 September 1958.

ON LIMITED WAR

"Limited war may be limited in the objectives of the war; limited in area; limited in the forces employed or limited in all three. Unfortunately, many people, in uniform and out, appear to equate limited war to small war. This is not necessarily so. In limited war, unlike thermonuclear war, it is possible to apply strategy—that is, it is possible to achieve the objectives of a war through the use of military power. Army forces can help achieve national objectives—hence we consider these Army forces truly strategic forces. Our goal is to provide quick reaction so we can deter limited war or win limited war before it becomes a big unlimited war. We need power proportionate to the task, and mobility—the ability to get sufficient force to trouble spots quickly."

Major General John P. Daley, Director of Special Weapons,
Office, Chief of Army Research and Development,
before the Aero Club, Detroit, Michigan, 1 July 1958

ON THE LONG-TERM SECURITY EFFORT

"The requirements of security are not presently light, nor are they likely to be materially lightened in the future. There are no wonder weapons or devices which I know about which offer the hope of reducing the requirements of our Services for men, money, and equipment. We are facing a long period of tension wherein our national military posture must be maintained, even at a great effort. We have assumed responsibilities as a nation which we cannot put down. In terms of the athletic field, we must keep in training throughout the entire year—not for a season, not for this year, but for next year, the following year, and for the indefinite future. The maintenance of our national security can no longer be regarded as a seasonal sport. And none of us are sitting in the grandstand—we must all take part as players on the field, responsible for the final outcome."

General Maxwell D. Taylor, Army Chief of Staff,
before the United States Conference of Mayors,
Miami Beach, Florida, 13 September 1958.

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